PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF ASSAM

FOR THE YEAR

1874-75.

By GUSTAV MANN,

Officiating Deputy-Conservator of Forests, Assam.

SHILLONG:

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1875.

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FROM GUSTAV MANN, ESQ.,

Offg. Deputy-Conservator of Forests, Assam,

TO THE SECRETARY TO THE CHIEF COMMISSIONER

OF ASSAM.

Dated Shillong, the 15th September, 1875.

SIR,

I have the honour to submit the Annual Administration Report of this Department.

2. The 1st of August has been prescribed as the date on which Annual Forest Reports should reach the Government of India. But, since the Deputy-Accountant-General has the audit of the forest accounts, and his books for the financial year are not closed until the 31st of July, the submission of the report on the prescribed date is impossible.

3. The last statement of accounts for this year's report has only been received this day from the Deputy-Accountant-General, which caused the delay in its submission.

4. I have entered into greater detail in the report, as it is the first for this Province; and the Inspector-General of Forests, in his report for 1872-73, had remarked on the paucity of information on forest matters available regarding this Province.

5. Maps of the Goálpára, Kámrúp, Darrang, Nowgong, and Sibságar districts, and the Nága Hills Agency, showing the forests in charge of the Department, are also forwarded for transmission to the Government of India.

I have the honour to be,

SIR,

Your most obedient Servant,

GUSTAV MANN,

Officiating Deputy-Conservator of Forests, Assam.

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PROGRESS REPORT

FOREST ADMINISTRATION IN ASSAM

For the year 1874-75.

By GUSTAV MANN,

Officiating Deputy-Conservator of Forests, Assam.

INTRODUCTORY.

THIS being the first Forest Report for the Province of Assam separately, a brief history of forest conservancy in Assam, and a short recapitulation of the work done by this department, and the influence of its actions on the general conservancy of the Assam forests, is here recorded.

Past history of forest conservancy in Assam Proper.

2. The first time forest management was thought of in Assam was in the year 1850, when the Collector of Kámrúp represented to the Commissioner of Assam that the wood-cutters from Bengal, after having exhausted by indiscriminate fellings the Sâl forests in the districts lower down the Brahmaputra, had found their way to Kámrúp in search of Sâl timber.

Collection of revenue.

3. The Collector of Kámrúp suggested at the same time that a tax should be levied on the timber felled, instead of letting the timber trade remain uncontrolled, and leaving the ordinary fiscal officers to levy unauthorized cesses, as they were in the habit of doing at that time.

4. The tax proposed was ~~Rs~~ 15 per hundred logs, or nearly 2½ annas for each, and was intended to supersede a tax established in the previous year (1849-50) upon timber cut in the Gáro and Khási Hills, and floated down the Singra and Kulsi rivers. The income from the new tax was estimated at ~~Rs~~ 500 to ~~Rs~~ 600 annually.

5. Besides the realizing of this revenue, the Collector of Kámrúp proposed to establish at the same time a check on the felling of young trees, so as to ensure natural reproduction of the forests, and to prevent waste. These proposals were approved by the Commissioner and His Honour the Deputy-Governor of Bengal.

No conservancy thought necessary.

6. In 1852 this system was abolished by the Board of Revenue, and that of farming certain tracts of forest to the highest bidder, for a period not exceeding five years at the time, was introduced; the Board expressing their opinion that the farmers should be left at liberty to work the forests as best suited their own interests, leaving it for future consideration to restrict the farmers to cutting trees of certain sizes only, or to prevent the destruction of young trees. Such conservancy measures were to be thought of after the forests had been more cleared. This system had been extended to the Nowgong and Darrang districts by 1861, as the timber trade ascended the Brahmaputra, it not being considered necessary to have it established in Sibságar and Lakhimpur at that time.

Conservancy recommended.

7. In 1863 the Commissioner, when reporting on the preservation of the Government forests in Assam, whilst recommending that the above system of farming the forests should be continued in Kámrúp, stated that there was little or no timber of any value in Sibságar, and that

orders had been issued for the levying of the undermentioned fees in Nowgong, Darrang, and Lakhimpur, and fiscal officers were instructed to protect the forests from spoliation, and to prevent the felling of small trees of the kinds noted below :—

Description of Trees.	Rate of duty to be levied on Timber.
	Rs. As. P.
Trees called Tita Sappa and Sâl, that are fit for boat-making; length from 16 to 18 yards—for each ...	4 0 0
„ „ „ „ from 12 to 14 yards „ ...	2 8 0
Trees that are fit for boats, not of the above description, from 13 to 16 yards „ ...	3 0 0
„ „ „ from 12 to 14 yards „ ...	1 8 0
Trees of hard wood, such as Nahor, Jack, &c., fit for large posts for house-building, from 4 to 5 feet in diameter	2 0 0
„ „ „ for small „ „ 3 feet ...	0 8 0
Trees that are fit for beams for houses, small...	0 2 0
„ „ for small narrow planks	1 0 0
„ „ broad „	1 8 0

8. The Commissioner at the same time expressed an opinion that the Nambor forest should be preserved, and that professional men should be deputed to select and conserve the better forests in Assam, which had become especially necessary since forest land was the best suited for tea cultivation ; and Deputy-Commissioners felt the difficulty of deciding which land might, and which might not, be sold or leased for this purpose.

9. Since the fiscal officers of those days were, however, farmers who farmed the revenues of certain tracts on certain terms, forest conservancy can hardly be said to have existed at that time.

10. In 1868 a new revenue system was introduced, and small tahsildars, called mouzahdars, were appointed, and the forests and their protection made over to their care with the rest of the land.

The Forest Department in Assam.

11. In 1868 the preparation of a complete general map of all the forests in the Lower Provinces in Bengal was ordered by Government ; and, since the information received from the Civil authorities in Assam regarding the forests proved insufficient to prepare a map or to give a comprehensible description of these forests, an Assistant-Conservator was deputed to inspect and report on them.

12. This inspection commenced at the Sankosh river, the present western boundary of the Province north of the Brahmaputra, and was completed during 1868-69 up to the present eastern revenue limit of the Province north of the Brahmaputra.

13. In the year 1869-70 the general inspection was carried out in the country south of the Brahmaputra, and completed.

14. The results of these inspections are recorded in the Annual Forest Administration Reports of Bengal, for the years 1868-69 and 1869-70.

15. Although the protection of the forests under the new revenue system had become more feasible than formerly, there was no professional agency previous to 1869 to guide the Deputy-Commissioners and their mouzahdars, and consequently no conservancy or realization of proper revenue from the Government forests.

16. In the valuable Sâl forests of the Eastern Duars, in the Goálpára district, the Bengal wood-cutters were found exceedingly busy, cutting down whatever they wanted, and a great deal more, as was evident from quantities of partly used trees lying all about the forests,—and this all for the payment of Rs. 4-4 per axe for a year, which was calculated to be at the rate of 2 annas and 8 pie per tree, according to the timber-cutters' own statements, that each man brought out about fifty logs, and supposing two logs to be cut out of one tree, which is a very high estimate.

17. Logs at this time realized on the Brahmaputra Rs. 10 to Rs. 15 per pair. Whilst thus the most valuable Government forests in Assam were being plundered, the tahsildars were constantly making representations to the Deputy-Commissioner of the hardship it would be to the wood-cutters if this rate was raised, which it was suspected was not done from uninterested motives. Wood-cutters were in no way restricted as to size and quantity, and acted entirely as it suited their own interests.

18. In the Kámrúp district matters were worse, for the greater part of the most valuable Sâl forests had been made over to the Lower Assam Tea Company as waste land.

19. In the Darrang district timber was charged for at the above quoted rates, and the right of collecting rubber was sold to the highest bidder, or granted free, under the conditions that trees should be planted and rubber be collected only between the 1st of November and 30th of April; but since the ordinary fiscal officers only were supposed to look after the proper performance of these conditions, the natural consequence was, that when the first forest officer came to Assam, he found an outrageous wholesale destruction of these trees being practised in the Mangaldai sub-district, by felling the trees, and over-tapping having generally been carried on by the lessees or their employés, and trees were planted along roadsides or in stations, and never looked after.

20. In the Nowgong district the trees in the few small Sâl forests existing had been worked down to such small sizes, that no Sâl timber was left for the Public Works Department to build the bridges on the Assam Trunk Road, and some of the best Sâl forests had here also been sold as waste land.

21. The Sibságar district had but very little forest left anywhere; but, for all this, waste land grants had been sold in the Nambor forest, the conservation of which had repeatedly been urged by different authorities; and in the east of the Sibságar district forest lands were alienated in the same way.

22. In the Lakhimpur district, although the greater part of it still was forest, and is so up to the present day, still there is a vast difference in forests, and no description of forest sooner deteriorates by injudicious fellings than the mixed evergreen forest. For all this, there was no control over the fellings for the Dehing and Dibrugarh saw-mills, which were carried on almost at the very door of the Deputy-Commissioner; and the mouzahdars, who were the men supposed to look more directly after the Government interests, were engaged in supplying timber to the saw-mill.

23. Such were forest matters when the first forest officer arrived in the Province, in 1868-69; and although the small forest establishments available have not permitted the Forest Department to make progress equal to that of some other provinces, the changes wrought since then by the influence of systematic forest management have been of such importance as to justify the expenditure incurred, as is shown by the results, even at this early date.

24. After the general inspection of the Assam forests was completed, in 1869-70, the special examination, with a view of selecting reserves, commenced, and experimental timber and plantation works were started in 1870-71.

25. In the following year the Conservator of Forests proposed the transfer of several thousands of square miles of forest in Assam to the Forest Department, without defined boundaries, which was disapproved by the Government of Bengal; and the early selection and demarcation of the better forests as reserves was ordered, which latter were to be placed in charge of the Forest Department, whilst the remaining forests were ordered to be managed by the Deputy-Commissioners, to each of whom the undermentioned forest establishment was sanctioned for this purpose:—

One Forester	Rs. 40
Four Watchers, on Rs. 8 each	„ 32
Total per month for each district	„ 72

26. The selection, demarcation, and protection of reserves has since then steadily progressed, and timber and plantation works been extended gradually to different districts.

Past history of forest conservancy in Sylhet and Cachar.

27. This is a short history of the management of the forests in Assam proper; that of Cachar and Sylhet, now added to this Province, is the following.

28. In the year 1867 the Government of Bengal called upon the Conservator of Forests for a report on the way the Cachar forests were managed, and the Conservator furnished the information, received from the Deputy-Commissioner of that district, which was to the effect that all the Government forests in Cachar were open to the public, for the purpose of cutting wood and timber, free of charge, and to the hill tribes for temporary cultivation, entailing the clearance of forests, but that duty was levied at the Sealtek ghât on forest produce exported from Cachar.

Collection of forest revenue.

29. On receiving this report, the Government of Bengal pointed out, in 1868, that this duty was levied at Sealtek on produce from private forest lands, as well as from the Government forests, and the Deputy-Commissioner was called upon to report how this could be avoided.

30. The levying of toll at Sealtek was started before Cachar had become a British possession, and its continuance was ordered in a Resolution of the Government of Bengal, dated the 25th of April, 1859. The Deputy-Commissioner, in 1868, reported that he was of opinion that it was less oppressive than any other system he could suggest.

31. India-rubber and ivory were mentioned at the same time by the Deputy-Commissioner as the sources of forest revenue ranging next in importance to timber and bamboos, that the tapping of Rubber-trees had been prohibited since 1863, and the hunting of elephants was unlawful; but at the same time stated that, in spite of these prohibitions, the Rubber-trees were tapped and elephants were killed.

No conservancy existing.

32. The Deputy-Commissioner further reported that no attempt of forest conservancy had been made up to 1868, and that not only all large trees had been cut down, but that there had been a wanton destruction of young trees also. He at the same time pointed out the value of the woods, and mentioned that a hundred years ago the Collector of Sylhet built a fleet of sea-going ships with it.

33. The Deputy-Commissioner deprecated any system of forest conservancy by the local officials, and suggested that the entire management of the forests should be made over to the Forest Department, which latter, in communication with himself, should make arrangements for the realization of forest revenue, differing from the collection at the Sealtek ghât.

34. As regards the collection of rubber revenue, the Deputy-Commissioner specially pointed out that nothing should be done except in connection with the Forest Department, since he considered it of the greatest importance to provide for the renewal of the trees.

35. The Conservator of Forests, Bengal, in the same year promised to report on the Sealtek ghât and the forests of Cachar, but had to proceed home on medical leave, and the small establishments of the Forest Department in other parts of Bengal were reported as powerless to take a part in the forest management of Cachar.

36. In 1869 the transfer of the forests of Cachar to the Forest Department was again urged on the Government of Bengal. The Officiating Conservator intended inspecting the forests, and an establishment was provisionally sanctioned by the Government of India; but nothing was decided on or done during the year 1869-70.

37. In 1870-71, an Assistant-Conservator was appointed, but nothing was done during this year either, since the Assistant-Conservator resigned, and the Conservator of Forests found it impossible to visit Cachar during that year.

38. In 1871-72, the Conservator of Forests visited the Sealtek ghât, and the Deputy-Commissioner of Cachar and the Assistant-Conservator inspected the forests in the south-eastern corner of the Sylhet district; the result of which visit is recorded in the Annual Progress Report of Forest Administration in Bengal for 1871-72; the forests of Cachar remaining without inspection, as before.

39. After this, the Assistant-Conservator was sent to the Punjab to learn plantation work, and the Dacca (Cachar) forest division was closed, and has remained so ever since, to render the forest work in other parts of Bengal efficient by employing the staff there and none in Cachar.

40. The main statistical data of the Province of Assam are the following as follows:—

District.	Area in square miles.	Inhabitants, total.	Inhabitants per square mile.	Area under cultivation in square miles.	Percentage of area under cultivation to total area.
Goálpára	4,433	444,761	100	2,217	50
Kámrúp	3,631	561,681	155	723·1	19·9
Darrang	3,413	236,009	69	327·5	9·5
Nowgong	3,648	256,390	70	379	10·3
Sibságar	2,413	296,589	123	423·2	17·5
Lakhimpur	3,145	121,267	39	133·5	4·2
Sylhet	5,383	1,719,539	319	3,570·6	66
Cachar	1,285	205,027	160	254·6	20
Gáro Hills	3,390	80,000	...	...	...
Khási and Jaintiá Hills	6,157	141,838	...	233·6	3·7
Nága Hills	4,900	68,918	...	...	...

41. These are naturally not as accurate as they might be, especially as regards those parts which are under political control only, as accurate as they can be obtained in the more settled provinces; but they are the nearest approach to it, and the best data at present available.

42. The climate in Assam is excessively wet, and the rainfall exceedingly great, especially in the southern portion of the Surma valley and on the southern slopes of the Gáro, Khási and Jaintiá, and Nága Hills, as, for instance, at Cherra Poonjee, where the annual rainfall sometimes reaches 600 inches.

43. The rains begin about the first week in June, and last until the middle of October. Besides this, there is generally a week's rain early in January, and violent storms from the west, accompanied by heavy rain and frequently hail, also prevail in March.

44. The rainfall and temperature of different stations in Assam is the following:—

Name of Station.	Elevation above the sea.	Rainfall.	Temperature.						
			Cold season, December, January, and February.	Spring, March, April, and May.	Rains, June, July, and August.	Autumn, September, October, and November.	Year.	Extremes.	
								Minimum.	Maximum.
	Feet.								
Goálpára	386	96·43	64·1	75·3	81·3	76·8	74·4	42	99·7
Barpetá	...	95·78	64·5	75·1	81·7	80·7	75·5	...	...
Gauháti	134	67·82	65·6	77·6	82·6	78	75·8	48	94
Mangaldai	...	69	66·7	75·7	81·3	77·2	75·2	...	...
Tezpur	...	76·23	61·6	74·3	82	75·6	73·4	43	97
Nowgong	...	85·88	63·7	76·5	83·9	77·2	75·3	...	...
Golághát	...	81·38	60·3	75·8	83·7	76·1	74	...	...
Lakhimpur	...	129	62	73·8	...	...	...	...	...
Sibságar	...	94·91	62·2	73·7	83·2	76·9	74	...	...
Dibrugarh	620	115·31	62·2	73·7	82·1	74·7	73·2	...	...
Shillong	4,792	83·41	51·4	64·5	69·3	62·8	62·1	32·5	84
Silchar	89	118·51	63·7	76·2	82·4	79·0	75·4	42	99

45. The Brahmaputra valley consists of rich alluvial plains, comprising the deposits of ages, as washed from the Himalayas on the north, and the lower mountains, as the Gáro, Khási and Jaintiá, and Nága Hills, to the south.

Geological description of the Brahmaputra valley.

46. These alluvial plains are either but little elevated above the flood-level of the Brahmaputra and its tributaries, or so low that large extents of them are flooded for three or four days once or twice in the year.

47. Large areas are annually washed away, by the Brahmaputra changing its course, and re-formed in different localities, and, as far as forests are concerned, they cannot, if occupying the banks of the Brahmaputra, be depended on.

48. The small detached ridges of hills in the central and lower portion of the Brahmaputra valley are of granitic formation, with rich sandy loam of considerable depth on the surface, and enormous weatherworn masses of granitoid rocks are frequently scattered over these hills, the highest of which, in the Nowgong district, reaches an elevation of 2,919, and in Kámrúp of 1,878 feet.

49. Coal is chiefly found along the foot of the northern slopes of the Nága Hills, in the neighbourhood of the Dehing river, from Jaipur upwards.

50. The Surma valley is very similar, the whole district of Sylhet consisting chiefly of a large alluvial plain, formed by the deposits washed from the surrounding mountains, and which are even more subjected to inundations than the plains of the Brahmaputra valley.

The Surma valley.

51. The Surma and its tributaries have, however, more permanent banks, the shifting of which is trifling, compared with that of the banks of the Brahmaputra.

52. Small detached hills, or ranges of hills, consisting chiefly of sandstone, extend northwards from the Tipperah mountains, the highest of which, the Chatter Chura range, forming the eastern boundary of Sylhet, reaches an elevation of 2,069 feet.

53. Cachar is an almost entirely hilly country. Long ranges, composed chiefly of sandstone, extend southwards from the Nága Hills (North Cachar Hills), and northwards from the Lushai country, the highest of which is the Bhubun range, reaching a height of 2,514 feet. Alluvial plains of comparatively small extent exist between these different ranges, formed by the deposits from the various rivers entering Cachar from the mountains surrounding it on all sides, except in the west, where it adjoins Sylhet.

54. The mountains situated between the Brahmaputra and Surma valley, or in the centre of the Province, are highest towards the east, or Burmese, boundary, where they are known under the name of Patkai, and reach the elevation of 14,500 feet; whilst towards the western extremity, the Gáro Hills, the highest hill is 4,652 feet.

The mountains between the Brahmaputra and Surma valleys.

55. The Khási and Jaintiá Hills form the centre portion of this mountain range, and they are more explored, settled, and advanced than any other part.

56. The elevation of some of the more important places in the Khási Hills is noted below:—

	Feet.
Shillong (Court-house)	4,951
Cherra Poonjee	4,125
Nongpoh	2,652
Sapedbenang	4,433
Mullung	5,931
Mairang	5,666
Nongkhlao	4,621
Nongkhlao suspension bridge (boiling-point observation) ...	2,350
Jirang	2,419

57. The Khási and Jaintiá Hills are mainly of granitic formation, with stratified rocks, such as sandstone, limestone, shale, with coal resting on trap and metamorphic rocks. Rich ferruginous loam is the most common surface soil, except in the broad basin-like valleys, which seem to have received the deposits of soil washed from the hills, until the streams flowing through them found an outlet from the thus-raised basin or lake.

58. Lime is worked out of these hills to a great extent, and coal is worked for local consumption at Shillong and Cherra Poonjee only. Iron-smelting is still carried on to

some extent in the western portion of the Khási Hills, and the denudation of forests on these hills is to some extent attributable to the extensive manufacture of charcoal used for iron-smelting. Little or nothing is known as yet regarding the geology of the Gáro and Nága Hills.

Districts in the Province.

59. The Province of Assam, as constituted at present, and as it affects forest management, may be described in three divisions:—

First.—The Brahmaputra valley, comprising the following districts:—

(1.)—The Goálpára District.
(2.)—The Kámrúp "
(3.)—The Darrang "
(4.)—The Nowgong "
(5.)—The Sibságar "
(6.)—The Lakhimpur "

Second.—The Surma valley, comprising the following districts:—

(1.)—The Sylhet District.
(2.)—The Cachar "

Third.—The countries under political control only, which are the following:—

(1.)—The Gáro Hills.
(2.)—The Khási and Jaintiá Hills.
(3.)—The Nága Hills.

60. Except in the Nága Hills, which have a Political Agent, there is a Deputy-Commissioner under the direct orders of the Chief Commissioner of Assam for each district, who is the chief civil authority, assisted by Assistant and Extra-Assistant-Commissioners, and a Superintendent of Police.

61. Permanently-settled lands exist only in the Goálpára and Sylhet districts.

62. In the Khási Hills all lands are private property, and in the Jaintiá Hills a large proportion of the land is the same. The revenue from the ryotwári land is collected in Assam Proper by mouzahdars, who are placed over limited portions of the districts, averaging about forty square miles in extent. They receive ten per cent. on their revenue collections up to Rs. 6,000, and five per cent. above that sum. In Cachar the revenue is collected by tahsildars.

Area.

63. The forest area in Assam is estimated roughly in round figures as follows:—

Within revenue limits.

Goálpára	150	square miles.
Kamrúp	150	"
Darrang	580	"
Nowgong	120	"
Sibságar	350	"
Lakhimpur	2,500	"
Sylhet	300	"
Cachar	340	"
Total ...	4,750	"

Beyond revenue limits.

Khási and Jaintiá Hills	150	square miles.
Nága Hills	900	"
Lakhimpur	1,500	"
Cachar	500	"
Total ...	3,050	"

64. This estimate does, on the one hand, not include extensive forest areas, in which numerous hill tribes carry on jhoom cultivation, and must be permitted to continue doing so; whilst, on the other hand, it includes extensive forest tracts, at present untouched by the axe, but which eventually will, within the present revenue limits, have to be given up for tea cultivation, and, beyond revenue limits, to jhoom cultivation. The requirements of either it would be vain to estimate in the present day.

65. Again, the grass lands, with trees scattered over them more or less abundantly, which in a less fertile country might be considered forests, and have, even in Assam, been dignified with the name of savannah forests, are not included in the above estimate; if they were, the whole Province, except the cultivated area and rivers, might be designated forests.

66. The Gáro Hills have not been included in this estimate, since little, if any, of the forests remaining can be conserved, because the country is well inhabited and the people live by jhooming, a stoppage of which would mean starvation to the people if it was attempted, and is not advisable for political reasons either at present.

Description of forests.

67. The forests in Assam are of the following descriptions :—

(1.) Sâl forests.
(2.) Sissu and Khair forests.
(3.) Mixed plain forests.
(4.) Mixed lower hill forests.
(5.) Pine forests.
(6.) Mixed upper hill forests.

68. Sâl forests are those in which the Sâl-tree predominates, or is sufficiently abundant, so that the transformation of it into a pure Sâl forest can be brought about naturally without the aid of sowing or planting.

69. Sissu and Khair forests are those consisting chiefly of these two kinds, but are associated with other species of *Acacia*, *Albizzia*, *Sterculia villosa*, *Bombax Malabaricum*, *Lagerstræmia parviflora*, and others.

70. Mixed plain forests consist of trees more or less deciduous at some time or another during the year, which never form a very dense cover, but are comparatively open from above. They are much drier generally than lower hill forests, and grow as a rule only away from the hills, along the sides of rivers, on the perfectly level land, and include, amongst a number of species, the Soom tree (*Machilus odoratissima*,) on which the mugah silkworm is reared in the forests.

71. Mixed lower hill forests consist of trees more or less evergreen all the year round, which exclude the sun almost completely, and render it nearly impossible for deciduous trees to grow up in them. They are exceedingly wet, even in the height of the dry season, and occur exclusively on the lower hills, and in a belt along the foot of hills, varying, according to circumstances, from five to twenty miles in breadth. They include a larger number of species almost than the mixed plain forests, and include the rubber-tree (*Ficus elastica*) amongst their number, and abound in luxuriant bamboo vegetation amongst the trees in most localities.

72. Pine forests really deserving this name are limited to the higher lands on the Khási Hills above 3,000 feet, since only at this elevation the *Pinus Kasya* predominates over other vegetation, and forms more or less pure pine forests. The tree frequently occurs at elevations from 1,500 to 3,000 feet, and, in fact, forms there much larger and finer trees than at 3,000 to 6,000 feet, but it grows at lower elevations only isolated, or in mixed lower hill forests.

73. The mixed upper hill forests are those comprising all the temperate arborescent vegetation of the higher hills, consisting here chiefly of oaks, chestnuts, *Magnolia*, *Schima*, *Cinnamomum*, *Prunus*, *Engelhardtia*, and others. They are, on account of the comparatively low altitude of the mountains in Assam, of very limited extent.

74. The Sâl forests are met with chiefly in the Gáro, Khási and Jaintiá Hills, the Goálpára, Kámrúp, and part of the Nowgong and Darrang districts. In the latter they do not exist on large areas, but only in a few small patches, and their eastern limit is about the station of Tezpur.

75. Sissu and Khair forests exist, but on very limited areas,—Sissu growing only in the Eastern Duars, Goálpára district, and Khair in this and the western corner of the Darrang district. A few scattered Sissu-trees are found also in Lakhimpur, on the left bank of the Brahmaputra opposite Poba.

76. The mixed plain forests prevail all through Assam, but, though limited in the lower part of the Brahmaputra valley, they are most extensive in the upper half of the latter,—in fact, occupying nearly all the uncultivated lands in the Lakhimpur district. The

Soom-tree, which is of gregarious habit, is distributed irregularly all through these forests, in the Lakhimpur and Sibságar districts, occupying not unfrequently several square miles by itself, or nearly so. Another gregarious tree in the mixed plain forest of the upper Brahmaputra valley is the Jutili (*Altingia excelsa*), but the areas occupied by it are more limited.

77. The mixed lower hill forests are most extensive, occupying, as before said, all the lower hills in Assam, and form a belt, more or less broad, from the Sankosh, or western boundary of the Province, along the foot of the Himalayas, to the extreme eastern limit of it. The same belt exists along the foot of the northern face of the Gáro, Khási, Jaintiá, and Nága Hills, in the Brahmaputra valley; whilst in the Surma valley all the forests existing in the districts of Sylhet and Cachar are mixed lower hill forests.

78. The pine forests are confined to the higher Khási and Jaintiá Hills, where they occur chiefly on the northern slopes.

79. Mixed upper hill forests are very limited indeed, and confined to a number of isolated patches, many of which are sacred groves, along the highest ridge of the Khási and Jaintiá Hills, or the watershed between the Brahmaputra and Surma valley.

80. A list of the more useful trees in the Province, arranged according to their value, the description of forests, and the locality where they grow, and their chief uses, is given in Appendix I.

List of useful trees.

81. As regards the supply of timber, wood, and other forest produce, as well as grazing-grounds for ryots, these are so abundant that they are granted free, and without the necessity of permitting access to the reserves.

Timber and other forest produce and grazing-grounds for ryots.

82. Timber generally, except Sâl and Sissu, is plentiful, and its use for local requirements, and those in districts beyond the Province, is only limited by the excessive cost of manual labour, or the prejudice against everything but Teak, Sâl, and Sissu.

83. The scarcity of manual labour can only be counteracted, as, in fact, it has been in the Cachar forests, by the employment of elephants, which, however, is a somewhat unsatisfactory alternative, since elephants, especially when employed on timber-dragging, are undoubtedly very delicate, and cause the greatest possible anxiety and frequent disappointment to forest officers.

84. In the Brahmaputra valley trees are either sold standing in the forest, at the undermentioned rates, or the timber is brought into depot by the Forest Department. All trees not named in the undermentioned list are free:—

Kinds of timber.

No.	Native Names.	Botanical Names.	ROYALTY.
		FIRST CLASS.	
1	Sâl	Shorea robusta	Sal, Rs. 8; all the rest Rs. 6 per tree.
2	Sisu	Dalbergia Sissoo	
3	Nahor	Mesua ferrea	
4	Ajhar	Lagerstrœmia Reginæ	
5	Sam	Artocarpus Chaplasha	
6	Poma	Cedrela Toona	
7	Tita Sappa	Michelia Champaca	
8	Gunserai	Cinnamomum glanduliferum	
9	Uriam	Bischoffia Javanica	
10	Makai	Shorea sp.	
11	Koroi	Albizzia odoratissima	
12	Boga Poma	Chikrassia tabularis	
13	Hulluch	Terminalia bicolorata	
		SECOND CLASS.	
14	Barjamu	Eugenia mangifolia	Rs. 3 per tree
15	Banjamu	„ Jambolana	
16	Gomari	Gmelina arborea	
17	Bhe	Salix tetrasperma	
18	Bola	Morus lœvigata	
19	Makriah or Nagabhe	Schima mollis	
20	Koir	Acacia Catechu	
21	Phul Sappa	Michelia oblonga	
22	„ Hingori	Echinocarpus tiliaceus	
23	Bar „	Castanopsis tribuloides	
24	Hilika	Terminalia citrina	
25	Amari	„ tomentosa	
26	Sunaru	Cassia Fistula	
27	Jutili	Altingia excelsa	
28	Maj	Pithecolobium bigeminum	
29	Parolli	Stereospermum chelonoides	

Value of timber.

85. The market value of Sâl in depôts varies from 12 annas to Re. 1 per cubic foot, according to quality.

86. Other timber than Sâl is not brought into depôt by the Forest Department except on indent, when it is sold at 12 annas per cubic foot.

87. Timber from the Cachar forests is paid for at the toll-station of Sealtek ghât, according to kind and size of logs.

Forest legislation.

88. As regards forest legislation, Assam feels the want of a more extended Forest Act and more detailed forest rules, perhaps less than any other Province in India, since, with the exception of one small village in the Nambor reserve, no rights or privileges of the inhabitants exist in the reserves, and forest produce and grazing-grounds are so abundant all through the Province that it would be trifling with the Government interest to give ryots access to the reserves. This may also be said, generally speaking, in regard to those areas yet to be selected as reserves.

89. In the as yet undefined forests under the Deputy-Commissioners it is very much the same, since there are areas in excess of any possible requirements for the Province itself, from which even the open forest can be selected without the necessity of permitting cultivation or grazing in them.

90. What is necessary and urgent is that none of the better forests are given up at all for cultivation, until the Government forests, both reserved and open, are demarcated, and that this work is carried out with as much expedition as practicable, since without this there is always great danger in Assam of encroachment on the forests by temporary cultivation and alienation of Government forests by sale or lease, according to the views the respective Deputy-Commissioners take of the necessity for forest conservancy, and their knowledge of the forests in the districts.

91. The chief reason that Deputy-Commissioners have given so little support to forest conservancy is that they do not understand it, and the great influence it has on the welfare of the people. Neither have they had any special inducement to acquire such knowledge, since they have not been held directly responsible for the conservancy of the forests. The forest rules at present in force place the reserved forests in the entire management of the Forest Department, and exclude the civil authorities from it, which in some instances in Assam, where numerous unsettled hill tribes live on the adjoining land, and carry on jhoom cultivation in the neighbourhood of reserves, is not a wise policy. Neither would it be advisable to place forest reserves under Deputy-Commissioners alone, without the professional knowledge of forest officers; for which reason the rules should be so altered as to provide for the management of reserves by the Deputy-Commissioner and the Deputy-Conservator of Forests conjointly, where such is considered necessary.

92. In the Brahmaputra valley the timber trade is also as yet so limited that the rules in force for regulating the transit of timber suffice for the present, and in Sylhet and Cachar this has been managed under administrative arrangements hitherto without any difficulty having been experienced by the Deputy-Commissioners, so that it may be presumed that when the forest rules now in force are extended to those districts, they will be found to suffice there also. Wood-cutters and timber-traders in this Province are as yet, comparatively speaking, simple and obedient people, looking up to the Deputy-Commissioner for justice, and as a rule accepting his decision in forest matters without appeal, and feel perfectly safe in doing so, and forest and civil administration are becoming more combined every day in Assam.

93. By the time that the wood-cutters and timber-traders have become sufficient lawyers to dispute the legality of the Deputy-Commissioner's action in forest matters in this Province, we shall probably have a new Forest Act, and, as regards the management of timber operations, and timber transferred by forest officers, nearly all can be settled by contract between the timber-traders and the Forest Department.

Management of forests.

94. When Assam was separated from Bengal, this Province received in the Goálpára district Government open forests, gazetted under Act VII. of 1865, and the Bengal Forest Rules published in February, 1871; so that we have at present the following:—

(1.) Reserve forests gazetted, demarcated, and managed by the Forest Department.

(*a.*) Reserves within revenue limits, managed exclusively by the Forest Department under Act VII. of 1865, and the Forest Rules of 1871.

(*b.*) Reserves beyond revenue limits, managed under administrative arrangements by the Political Agent, Nága Hills, and the Forest Department conjointly.

(2.) Open forests, gazetted and managed by the Forest Department under Act VII. of 1865, and the Forest Rules of 1871.

(3.) Undefined forests, managed under administrative arrangements by the Deputy-Commissioners.

Map of the forests.

95. The distribution of these forests, and those proposed as reserves but not yet sanctioned, is shown in a map appended, and they will be noticed further in the succeeding sections.

Forest divisions.

96. The forest divisions in Assam, as sanctioned by the Chief Commissioner during the year, are—

(1.) The Goálpára Division.
(2.) „ Gauháti „
(3.) „ Tezpur „
(4.) „ Golághát „
(5.) „ Cachar „

97. The first of these, the Goálpára division, comprises the Government open forest in the Eastern Duars of the Goálpára district, covering an area of 422 square miles, out of which about eighty square miles are Sâl forest, the contents of which were estimated by the Conservator of Forests, Bengal, last year, at two-and-a-half millions of Sâl-trees, and, if properly protected, an annual yield of 25,000 Sâl-trees. This, no doubt, is the most valuable State property, as regards forest, in this Province. Any forests which it may hereafter be decided to conserve in the Gáro Hills will form part of this division. The head-quarters of the officer in charge are at Goálpára.

98. The Gauháti division comprises the forest reserves in the Kámrúp district and the western half of the Nowgong district, all of which are Sâl forests, which have been demarcated and mapped, and extend over an area of 50·76 square miles. This division also includes the experimental Rubber, Teak, and Sissu plantations at the Kulsi, which are the head-quarters of the divisional forest officer.

99. The Tezpur division comprises the forest reserves in the Darrang district, covering an area of 179·59 square miles, out of which only one square mile is Sâl forest, all the rest being mixed lower hill and mixed plain forest, with about half a mile of Khair forest in the Khaling Duar reserve, near the western boundary of the district. The above area includes the Nowduar reserves of 82 square miles, placed in charge of the Forest Department, but not as yet gazetted, on account of the unsettled boundary between the Akha Hills and Assam. This division includes the Charduar rubber plantation. The head-quarters of the divisional forest officer are at the Bhairabi ghât, a distance of five miles from the Charduar rubber plantation, to ensure competent supervision for this work throughout the year.

100. The Golághát division comprises the Nambor reserve of 389½ square miles in the Sibságar and Nága Hills districts, and the Mikir Hill reserve of sixty-five square miles in the eastern half of the Nowgong district. All the forests in this division are mixed lower hill forests, and 326 square miles of the above area, added during the year to the Nambor reserve, are managed by the officer in charge of the Golághát forest division, under the orders of the Political Agent, Nága Hills, and the Deputy-Conservator of Forests conjointly. The head-quarters of the divisional forest officer are at Golághát.

101. The Cachar division comprises an area of 825 square miles, in the Cachar district, and 273 square miles on the Sylhet district, which it has been proposed to declare reserves under Act VII. of 1865, to be managed by the divisional forest officer, under the orders of the Deputy-Commissioners and those of the Deputy-Conservator conjointly. The head-quarters of the divisional forest officer are to be at Silchar.

SECTION I.—INSPECTION OF FORESTS.

102. The continuation of the examination of the Eastern Duars and Gáro Hills forests had to be deferred, as the officer in charge of the Goálpára division obtained leave to Europe on medical certificate, and no other forest officer was available in his place for this Province. Inspection was therefore confined to Cachar and Sylhet, the forests in these districts needing it most urgently.

CACHAR DIVISION.

CACHAR AND SYLHET DISTRICTS.

103. The long deferred inspection of the Cachar and Sylhet forests was carried out this year, with a view of submitting definite proposals regarding them for the approval of the Chief Commissioner.

104. The forests of Cachar, constituting formerly the Dacca forest division, were added to this Province at the time it was separated from Bengal, and those of Sylhet in September of the year under notice.

Boundaries.

105. The boundaries of these districts are—

North.—The Gáro, Khási and Jaintiá, and Nága Hills.
East.—Manipur.
South.—The Lushai and Tipperah Hills.
West.—Tipperah and Mymensingh.

Statistical data.

106. The main statistical data of these districts are the following :—

District.	Area in square miles.	Inhabitants, total.	Inhabitants per square mile.	Area under cultivation in square miles.	Percentage of area under cultivation to totalarea.
Sylhet	5,383	1,719,539	319	3,570	66
Cachar	1,285	205,027	160	254	20
Total for Sylhet and Cachar ..	6,668	1,924,566	479	3,824	

Geological description.

107. Both Sylhet and Cachar consist of low and detached groups of hills, or ranges of hills, chiefly composed of sandstone, and running northwards from Hill Tipperah and the Lushai country towards the Barák, Kusiyara, and Surma, which are the main rivers of the country, to which are carried by numerous tributary streams the waters from the surrounding mountains. Many as these rivers are, they prove often insufficient to carry off the excessive rushes of water, especially from the northern mountains, caused by the exceedingly great rainfall there, thus inundating not unfrequently the alluvial plains between the hills, a considerable portion of which remains the greater part of the year under water, whilst in some parts of the district large beels, or lakes, remain full all the year round.

108. The alluvial plains on either side of the rivers vary greatly in extent in different parts of the two districts, and whilst Sylhet may be described as a low and level country, with a few low ranges of hills from 200 to 1,200 feet in height, Cachar is an entirely hilly country, with the Bhubun range reaching a height of 2,514 feet, and only a comparatively small extent of level land in it. The river banks are, however, much more permanent in Cachar and Sylhet than in the Brahmaputra valley, and there is none of that washing away of miles of land and forest, and re-forming of new lands, as in Assam Proper.

Rivers.

109. The Surma, Kusiyara, and Barák are magnificent waterways for the transport of timber, and much safer for rafts than the Brahmaputra. Besides these, the chief tributary rivers on which timber floating is carried on are—

In Cachar.—The Jiri, the Sonai, the Rukmini, the Kátákhál, and the Dhaleswari Rivers.
In Sylhet.—The Singla and Lungai Rivers.

During the months of November to May but little floating is done, on account of the shallowness of some of the latter streams near the forests.

Climate.

110. On the whole, the climate of Sylhet and Cachar is excessively wet, resembling that of Upper Assam, the temperature being very similar, as shown below :—

Name of Station.	Elevation above the sea.	Rainfall.			Temperature.								
					Annual mean.			Minimum.			Maximum.		
		1871.	1872.	1873.	1871.	1872.	1873.	1871.	1872	1873.	1871.	1872.	1873.
	Feet.	Inches.	Inches.	Inches.									
Silchar	89	92·48	124·44	103·36	75·8	79·2	75·7	43·0	47·5	46·0	98·0	99·0	97·0

Situation of forests.

111. The forests worth conserving are, both in Cachar and Sylhet, chiefly situated along the southern boundaries of these districts, and are uninhabited except near their northern limits, where the migratory tribes, such as the Kukies, have a few scattered villages. This in all probability has been brought about by the Lushai raids.

112. Comparative safety in the east of Cachar towards the Manipur boundary has naturally been followed by the spread of permanent cultivation in that direction, whilst the west of this district resembles most that of Sylhet, in which almost every inch of suitable ground has been brought under cultivation.

113. Those lands in the north not permanently cultivated by villagers, or taken up for tea-cultivation, are covered with thick bamboo and other scrub, which always springs up on all the land after jhooming, and is not worth conserving, since a large proportion of the population in Cachar still live by this mode of cultivation, and will have to continue doing so, it being congenial to their habits, and prohibiting it entirely would not be at all advisable for political reasons.

114. In the Nága Hills (North Cachar Hills) there is still forest left here and there,—but the difficulties of working are almost insurmountable, whilst the wood is of such inferior kinds that it does not repay for the transport, which depends entirely on chances of high floods, and so forth, since no control over the timber on the mountain streams can be maintained.

115. Besides this, for political reasons, interference in these hills by introducing forest conservancy measures could not be attempted at present, and the forests in the south of the district, if protected and worked according to a proper system, will secure a permanent supply for both the Cachar and Sylhet districts.

Area of forest.

116. The forest area still worth reserving is—

Cachar ...	Within the Inner Line	336	square miles.
	Beyond the Inner Line	489	„
Sylhet		273	„

Tea-estates within the forest.

117. On these areas, and within the Inner Line, there are nineteen grants for tea-cultivation in Cachar, and one in Sylhet, nearly all of which have been surveyed during the last cold season, and their boundaries can therefore be controlled.

Claims on the Sylhet forests.

118. Some of the forests in the Sylhet district is claimed by Merishdars, but these claims are considered by the Deputy-Commissioner as very doubtful, if not altogether unjustifiable, and are under investigation.

Description of forests.

119. The forests in both districts are exclusively mixed evergreen or lower hill forest, there being no Sál or Sissu anywhere.

120. The different kinds of deciduous trees composing the mixed plain forests, together with low bamboo scrub, form the vegetation that springs up on old jhooms, and

since the continuance of this mode of cultivation must be permitted to different hill tribes, in Cachar at least, as stated above, these tracts have not been included in the forest area, it being proposed to surrender them for this particular mode of cultivation, but at the same time to confine it to these tracts only, since the ruin of the forest is brought about quicker by this than anything else.

List of useful trees.

121. As in all evergreen forests, especially in this part of India, the number of species is very great, a beginning only could be made in ascertaining their names, which are given in Appendix I.

122. It is extremely difficult to give reliable native names of trees, since the great number of different tribes residing in Cachar, and want of names in the language of most of them for each particular kind of tree or wood, causes a great confusion in these names, and renders it all the more urgent that the scientific name of each kind of wood be ascertained. So, for instance, the names of "Kurta" and "Rata" are applied sometimes to one species only, but not the same species, in different parts of the district, whilst other people, again, frequently include three, four, and more species under each of these names. Similar it is with the name of "Jam," which takes the place of the Assamese name "Jamoo," usually given to *Eugenia*, whilst here it is applied to *Schima Engelhardtia* and others.

The timber trade.

123. A very extensive timber trade is carried on, and the chief timber markets in Cachar and Sylhet, and the districts beyond, supplied from these forests, are the following:—

Cachar.—Sonaimukh and Silchar.
Sylhet.—Banda, Churria Bazar, Sylhet, Chhatak, Sonamgunj, Azmerigunj.
Mymensingh.—Bhyrub Bazar.
Dacca.—Dacca.

124. The leaseholder of the Sealtek ghât toll-station has reported that 48,207 logs passed the ghât during the last three years, or an average of 16,069 annually. But, since it would be decidedly to his interest to conceal the correct amount as far as he can, so as to depreciate the value of the lease, the Deputy-Conservator considers these returns as unreliable and too low, and the Deputy-Commissioner is of the same opinion.

125. Besides the timber exported beyond Cachar, however, there are large quantities being converted in the district itself, at Sonaimukh, the station of Silchar, the Keatinge Saw-mill at Budderpur, and other localities.

Timber works.

126. Inquiry made by the Deputy-Commissioner of Cachar, regarding the number of elephants employed in timber-dragging in the Cachar forests, resulted in 120 being reported, whilst the Deputy-Commissioner believes there are at least 200 employed on this work.

127. The wood-cutters of Cachar, or their employers, apply to the Deputy-Commissioner for permission to cut timber, bamboos, cane, &c., and obtain a permit for six months, in which it is stated that Jarul (*Lagerstræmia Reginæ*) and Nagessur (*Mesua ferrea*) shall not be cut under four feet in girth. These licenses are paid for at the rate of Rs 5 for every party not exceeding ten men; if a larger number of wood-cutters are entered in the permit, 8 annas have to be paid for every additional man.

128. Felling has been carried on to a much greater extent in Cachar within the Inner Line than beyond it, and the assertion made by most of the wood-cutters that they have to go beyond British territory was not confirmed by personal inquiry on the spot, and is also proved to be false by the number of passes issued by the Deputy-Commissioner, which amounted in the year 1874-75 to only seven passes for ninety men, as compared with the number of licenses granted for cutting timber in the Cachar forests, which amounted to 716 for 7,167 men from February, 1873, to the 31st of March, 1875, or an average of 330 licenses for 3,307 men per annum.

129. The timber work in the Sylhet forests has been closed on account of claims by merishdars, as stated above.

Prices of timber.

130. The prices of timber in Sylhet and Cachar now, as compared with 1863, the Executive-Engineer stated to be as follows :—

	1863.	Sylhet.			Cachar.		
		Rs.	As.	P.	Rs.	As.	P.
Jarul, per cubic foot	...	2	8	6	2	3	6
Nagessur „	...	2	0	6	1	13	0
Rata and Kurta „	...	1	9	6	1	4	9

	1874.	Rs. As. P.	Rs. As. P.
Jarul		Not procurable.	Very scarce.
Nagessur, per cubic foot	... ...	2 6 0	2 4 0
Rata and Kurta „	... ...	1 8 0	1 8 0

131. At the Keatinge Saw-mill, at Budderpur, it was stated that inferior kinds of timber are paid for now at the rate of about 12 annas per cubic foot, whilst last year it had been procurable for half that price.

132. The prices of scantlings sold at this saw-mill, compared with those paid by the Executive-Engineer at Dibrugarh, in Upper Assam, are the following :—

	Rs. As.	Rs. As.
Budderpur, per cubic foot	1 8 to	3 0
Dibrugarh, „ „	0 13 „	1 4

The prices of tea-boxes are, at Budderpur saw-mill, Re. 1-2; Dehing, Re. 1.

Revenue collected at the toll-station of Sealtek ghât.

133. The forest revenue on timber, bamboos, and thatching-grass, is collected at Sealtek ghât, situated thirty miles below the station of Silchar, on the Barák river, near the Sylhet boundary, and about sixteen miles distant by road.

134. The lease of this toll-station is sold annually, by public auction to the highest bidder, in March, by the Deputy-Commissioner of Cachar.

135. The annual revenue from this ghât since 1866-67 was the following :—

	Rs. As. P.
1866-67	5,520 0 0
1867-68	7,600 0 0
1868-69	11,035 0 0
1869-70	11,500 0 0
1870-71	16,000 0 0
1871-72	10,244 1 1
1872-73	14,141 12 10
1873-74	15,100 0 0
1874-75	15,000 0 0

136. When the lease was offered for sale, in 1871-72, the year of General Bourchier's expedition against the Lushais, only Rs. 8,000 were offered, in consequence of which the Deputy-Commissioner did not lease the ghât, and had the toll collected during this and the following year under his own direction by Government agency.

137. The revenue of 1874-75 was paid in the following instalments :—

	Rs.
April	50
May	75
June	175
July	200
August	400
September	2,000
October	2,300
November	2,400
December	2,500
January	2,500
February	2,400
Total ...	15,000

138. The authorized rates of tolls levied at Sealtek ghât are noted below :—

	Rs. As. P.
Jarul.	
Logs less than 18 feet in length, each	1 4 0
„ 30 feet „	2 8 0
Logs over 30 feet in length, each	5 0 0
Posts, each	1 0 0
All other woods.	
Logs less than 18 feet in length each	0 8 0
Logs not exceeding 24 feet in length, each	1 2 0
„ 30 feet „	2 8 0
„ 36 feet „	3 8 0
Logs over 36 feet in length, every 6 feet in length, an additional ...	1 4 0
Planks	0 0 6
Bamboos, per 1,000	1 4 0
Canes (Jali and Sundi), 100 bundles of 76 pieces each	1 8 0
Canes (Gulla), 100 bundles of 76 pieces each	2 0 0
Thatching-grass, each raft	2 8 0

139. This, as regards timber, if the average size of the logs is taken at four feet girth, is equal to a tax varying from annas 1-3 to annas 2-6 per cubic foot of Jarul, and from 6 pie to annas 3-4 per cubic foot on other woods.

140. Since the timber used in the district of Cachar is not taxed, the above can only be compared with the price of timber at Sylhet, and stands as follows per cubic foot :—

Kind of Timber.	Price at Sylhet.	Government Tax. As. P.	As. P.
Jarul	... Not to be had.	1 3 to	2 6
Nagessur ...	... Rs 2-6-0 }	0 6 „	3 4
Kurta and Rata ...	... „ 1-8-0 }		

141. No tax is levied on converted timber or wood of any description, neither on any logs which may be carried inside a thatched boat.

142. Timber felled on private lands pays no toll if covered by a pass from the owner of the land.

143. It is evident from the above figures that the tax paid is exceedingly small, as compared with the value of the timber, and does not represent the value of the wood in the forests, but is a mere transit-duty, imposed very indifferently as regards the quantity of timber on which the different rates are paid.

144. At present no toll is levied until the timber passes the Sealtek ghât ; so that all timber consumed in the district of Cachar is obtained free, which is at once neither equitable nor just to the inhabitants of Sylhet, and deprives the Government of a large amount of legitimate revenue, especially so, if an increased expenditure is incurred for the preservation of these forests, the benefit of which will accrue to the inhabitants of Cachar prior to those of any other district.

Receipts from fees paid by wood-cutters.

145. The receipts from fees paid by wood-cutters or their employers since February, 1873, have been the following :—

	Rs
February and March, 1873	335
Financial year, 1873-74	2,030
Ditto 1874-75	1,580
Total ...	3,945

146. It has also been proposed by the Deputy-Commissioner to tax the elephants employed in timber-dragging at the rate of Rs 20 each per annum, which tax was, however, not levied before the 1st April, 1875.

Uses made of the timber.

147. The main use to which the timber felled in the Cachar and Sylhet forests is put is boat-building, the wasteful practice of making dug-outs existing here no longer, on account of the scarcity of timber generally; house and bridge-building rank next, for which works the following four kinds are most appreciated :—

Jarul.	Kurta.
Nagessur.	Rata.

Next comes the manufacture of tea-boxes, for which "Jhalna" is consumed in largest proportion. For furniture, all the better kinds of woods, which, however, are only found scattered through the forests in small numbers, are used, such as:—

Cham.	Bandolat.
Poma.	Champa.
Gomai.	

For the manufacture of oars, Jinari (*Podocarpus bracteata*) is chiefly employed.

Charcoal burning.

148. Charcoal is required in large quantities for the manufacture of tea, and renders the strict conservancy of even inferior woods imperative.

Bamboos and canes.

149. Besides timber, large quantities of bamboos and cane are cut in the Cachar forests, some of which are used in the district itself ; the greater quantities, however, are taken to Sylhet. The thatching-grass on which toll is levied at Sealtek must be procured from outside the forests, since the latter do not admit the growth of grass in them, in consequence of their dense foliage.

Rubber.

150. The trees of *Ficus elastica* are in the same exhausted condition as those in Assam Proper, perhaps more so, since the Lushais make it their business to come in the cold weather from their own country, where there is less rubber now, in search of it to the Cachar forests.

151. Rubber has always been exported largely from Cachar and the adjoining countries since 1862, and its conservancy been urged since 1869; but the difficulties of controlling the tapping have here, as in Assam, proved insurmountable.

152. It is collected from *Ficus elastica* only, since the substance obtained from a climber known under the name of "Lolum Lota," found chiefly on, and east of, the Chatachura range, has been declared as useless by the merchants of Calcutta,—it is brittle and without elasticity.

153. The quantity of foreign rubber brought into Cachar since 1870 has been :—

From the Lushai Country.

	Maunds.
1870-71	1,682
1871-72 (*Expedition against the Lushais*)	None.
1872-73	3,256
1873-74	5,878
1874-75	4,930

From Manipur.

1870-71	338
1871-72 (*Expedition against the Lushais*)	None.
1872-73	300
1873-74	399
1874-75	462

154. In 1874-75 the number of passes granted by the Deputy-Commissioner to proceed into the Lushai country to purchase and collect rubber was 287 for 323 men.

155. The facilities for smuggling are almost greater in Cachar than in Assam, besides which, the people generally seem more awake to the large profits to be made in this trade. The quantities of smuggled rubber seized from 1868 to the 31st of March, 1875, was 153 maunds.

156. The trees, as existing at present, would require many years' protection before they could recover, if this is at all possible, and it could only be ensured by more frequent inspection of the forests than they have received hitherto.

157. The effectual protection of rubber-trees is, however, considered impracticable, and improved arrangements of watching over them here, as well as in Assam, will, it is considered, only defer their total destruction.

158. This is so far an advantage, as it will give the trees planted by the Forest Department time to grow up, and thus ensure, to some extent, the keeping up of the supply of rubber from the Province.

159. In a financial point, it is now evident that the prohibition of the tapping of rubber-trees has proved a failure, since it lost all the revenue without protecting the trees, thus reducing the forest receipts—an income which might with advantage have been employed for starting plantations of rubber, easily to be controlled.

Destruction of forests.

160. Amongst the dangers to which the forests in Cachar and Sylhet are exposed, ranks foremost the jhoom cultivation, which should be confined to areas outside the forests, covered with scrub or inferior forest, of which there is no scarcity.

161. The people who engage in this mode of cultivation are the Kukies, Nágas, and Cacharies. The Kukies are by far the worst, since they will always jhoom in high forest in preference to land covered with scrub, and the destruction of forest by them is generally admitted to be enormous. The Nágas are not so bad, but return to old jhooms, or start permanent cultivation; and the Cacharies are said to be taking to the latter also now, as it is less laborious and more productive.

162. Danger from fire to the Cachar and Sylhet forests there is none, since they cannot burn.

Conservancy much needed.

163. Naturally, under the present system, conservancy can hardly be said to exist, since there is no direct control whatever over the fellings carried on by the wood-cutters; and the only restrictions existing, and inserted in the permission to fell timber, granted by the Deputy-Commissioner, is that no Jarul or Nagessur is to be cut of less than four feet in girth, which measure was introduced in March, 1873.

164. It is much to be regretted that this only restriction, although not ensuring all that is necessary towards conservancy, and although not checked in the forest itself, was not extended to all the kinds of trees which are being felled, since, for want of this, an infinite amount of deterioration must have taken place in the forest, judging alone by the quantities of wood which passed the Sealtek ghât.

165. The condition of the forest is accordingly inferior in all those localities nearest the rivers, and inhabited parts of the districts.

166. Interfering, as the felling of trees of small size does, with the natural re-production of the same species, the shedding of seed only happening after a certain age and size is reached, it is more injurious in the mixed evergreen or lower hill forests than in any other, since in these a general struggle for life and space by a great number of species exists; so that, naturally, the room made by the felling of the serviceable trees is filled up at once by the other species surrounding the spot, thus reducing the chances of seedlings from the felled tree to a minimum, since they are soon deprived of the light and air necessary for growth. If this state of things is rendered still worse by trees being felled before they bear seed freely, the quantities of the serviceable species upon a standard area must necessarily be diminished.

167. To prevent this, the condition of felling no timber trees below four feet should be more strictly enforced in mixed evergreen forests than anywhere else, inasmuch as the general appearance of these forests is such as rather to deceive, and to induce a feeling of security of possessing a valuable forest, which in reality consists of trees fit for little else than firewood.

168. On three sides the districts of Cachar and Sylhet are surrounded by hills, the inhabitants of which all live by jhooming, and are not likely to adopt any other mode of cultivation until all the forests are gone; whilst on the remaining or western side there are districts having no forests, but requiring forest produce constantly from Cachar and Sylhet.

169. The districts immediately influenced by forest conservancy in Sylhet and Cachar are—

Cachar.	Mymensingh.
Sylhet.	Dacca.

170. The latter two of these receive only what is not required in the former two, and this is limited in quantity, whilst Sylhet consumes naturally a much larger proportion than Cachar, in consequence of its comparatively large population, and great scarcity of forest in the district itself.

SECTION II.—RESERVES.

171. The areas of the reserves have been corrected according to the Revenue Survey maps published during the year, and are exhibited, with the areas added during the year, in the tabular statement attached.

Demarcation of reserves.

172. All reserves in Assam have been demarcated by boundary mounds of earth, measuring ten feet in diameter, and five feet in height, and boundary-paths where necessary and no natural boundaries exist. These are repaired thoroughly once a year.

Register of reserves.

173. A short register of the forest reserves, as gazetted up to the 31st of March, 1875, in the different forest divisions is recorded in Appendix II.

Maps of reserves.

174. District maps, exhibiting all the forest reserves and the open forests in the Eastern Duars, are submitted with this report.

Additions to the reserves.

175. The reserves added during the year were the following:—

In the Gauháti Division.

(1.) An addition to the Borduar Reserve.
(2.) The Jara Sâl Forest.
(3.) The Milmillia Sâl Forest.
(4.) An addition to the Kholahaut Reserve.

In the Golághát Division.

An addition to the Nambor Reserve.

GAUHATI DIVISION.

176. All the new reserves added to this division were demarcated, where no natural boundaries existed, and maps on the scale of four inches to the mile prepared for the office of the Deputy-Conservator and the divisional forest office. The detailed survey examination and valuation, which it was intended to commence this season, was prevented by the serious illness of the officer in charge of the division,—the late Mr. Aylmer.

Protection from fire.

177. Great efforts were made to prevent the burning of the reserves in this division, which are all Sâl forests, and were perfectly successful in the Kámrúp district, where the fire was kept out of the forests, extending over forty-eight square miles.

This was done by clearing fire-paths, fifty feet and more in width,—wherever there was no road sufficiently broad, a river or other water boundary. The grass was cut on both sides of these paths to a width of ten feet, and thrown on the centre portion of the path, and this burned as soon as it was dry enough, under the personal supervision of the divisional officer, when practicable, and the whole of the protective establishment.

178. The latter, permanently employed, is the following:—

One Forest Ranger, on	...	...	...	Rs. 50
Seven Watchers, on	...	...	...	„ 7 each.

To these were added thirty-three temporary watchers on Rs. 7 each per mensem for the months of January, February, March, and April, and so distributed that each man could pass twice during each day over his beat, and see that no danger existed, and had time to get assistance, if the fires, which during the year were as extensive and furious as usual, approached the reserves, and great credit is due to Mr. Aylmer for the way this was managed.

Aid from district officer.

179. In addition to the arrangements made by the department, the district officer warned the villagers living in the neighbourhood not to set fire to the grass near the reserves, or to let the fire spread from their fields, which has been of the greatest possible assistance; and the successful protection of the reserves was brought about as much by this as the safety strips; and there can be no doubt that efforts made by the Forest Department without the aid of the district officer will but rarely be successful.

Reserves in the Nowgong district.

180. The Kholahaut and Deboka reserves, of 3·81 square miles of Sâl forest in the Nowgong district, and from 70 to 100 miles distant from the Kámrúp reserves, were to be protected in the same way. But the want of a reliable subordinate, who could remain on the spot, prevented success in these forests; so that part of them were burned again this year, and it is not intended to attempt it again until the present protective establishment for the Gauháti division is augmented by another forest ranger,—since the temporary absence of the forest ranger from the Kámrúp reserves, weakens the protective arrangements in these also, and might any day result in a failure in both localities.

General protection.

181. The protective establishment in this division, as quoted above, was provided for in the budget; but its employment is as yet but temporarily sanctioned by Government, and the additions to the reserves during the year necessitates the employment of four additional watchers in this division.

182. The ordinary protection of the Sâl reserves has also been carried out with vigour and success, and the young Sâl trees show a marked improvement in consequence of the last few years' watching, previous to which it was the common practice of everybody near to hack about the young Sâl trees for firewood and petty constructions, which has

now been effectually stopped, and this without any inconvenience to the people, beyond their having to go a few hundred yards further to collect their firewood. It has also induced them to economize wood generally, and to employ bamboos grown around their villages instead of Sâl saplings, as formerly used; and the Sâl reserves promise to become a most valuable source of supply of superior timber, which the Province, with all its thousands of square miles of forest, is in need of. Forest produce and grazing grounds being so plentiful in Assam, but very little trespass is attempted at present, if the protective establishment are active and well controlled,—so that in the Gauháti division there has been only one case tried, in which two persons were concerned, and both were convicted.

TEZPUR DIVISION.

183. No additions were made to the reserves in the Tezpur division; and the Nowduar reserve, managed by the Forest Department, but not yet brought on the register of reserves, could not be gazetted, on account of political difficulties preventing the settlement of the British boundary between the Darrang district and the Akha Hills. The cultivated portion of the proposed Charduar rubber plantation reserves is taken care of, as a matter of course, by the department, but the reserve has not been sanctioned as yet by the Chief Commissioner.

Protection from fire.

184. The protection from fire of the Sâl forest in the Balipara reserve was carried out by beating down the grass around blocks A. and B., and the outlying smaller patches of Sâl, to a width of fifty feet and more in December. This was done partly by manual labour, and partly by buffaloes dragging small logs over the ground. These strips were burned around block A. on the 12th January, and around the smaller patches on the 23rd of January, whilst the burning of the safety strip isolating block B. was deferred by Mr. Fisher because it was not sufficiently dry at that time, and the fire got eventually, on the 25th of February, into this block. Although the damage done was not very great, since the Sâl stands very close, and there is consequently but little grass in the forest, still it is much to be regretted, because it could easily have been avoided, as this block is naturally protected by mixed forests on three sides.

185. About half way between Tezpur and the Balipara reserve, and one mile from the road, in the neighbourhood of Garumari, there is a small Sâl forest, which it is intended to propose as a forest reserve, on account of the extremely small area of Sâl forest in the Darrang district; and this forest, of about fifty acres, has for the above reasons already been protected during the year by the department, and the fire kept out of it successfully. Three temporary watchers, on Rs. 7 per month each, were employed in the Sâl forests of this division for keeping out fires.

186. The area thus protected in the Tezpur division is 600 acres, and that burned twenty-six acres.

Reboisement of Sâl forest.

187. The southern portion of the Balipara reserve, 7·14 square miles, is grass land, which has purposely been included for the planting of Sâl, and a commencement was made during the year to reclaim, in the first instance, some of the land immediately outside block A, on which the annual fires have constantly encroached, so as to increase the area and render the block more regular in its outline.

188. Regarding this reboisement, Mr. Fisher reports as follows:—

"The method employed was to plant out rooted seedlings soon after the germination, these seedlings being taken from the forest, and removed with earth round their roots."

"The grass was all cut from the area to be planted, and then lines one-and-a-half foot broad and three feet from centre to centre were hoed up, and in these the seedlings were planted at distances of one-and-a-half foot.

"The area planted out was 260 square tarrs, about four-fifths of an acre. The plants were put out in August and September, and have succeeded admirably.

"Further experiments in planting were made, on one-and-a-half acre, in December and January, but the plants died from the drought."

189. The first of these experiments was inspected by the Deputy-Conservator on the first of December, and countings made showed the following results:—

Total number of planting spots examined	...	...	609
Number of plants alive	...	...	558
„ failures	...	...	51
Percentage of plants alive	... 92	...	100
„ failures	... 8		

190. Further experiments are carried on now with saplings six to eight years old Both small seedlings and saplings abound in the forest, and can be procured from there, without having resource to nursery work.

Working plan for the Balipara Sâl forest.

191. Mr. Fisher has submitted the outlines of a working plan for regulating the felling in the Balipara Sâl forest, in which he assumes the age of a Sâl-tree of five feet in girth in this forest to be about 100 years, which has been calculated from the countings of concentric rings exhibited in Appendix IV. Founded on these data, and valuation surveys made by him, and recorded in last year's report, Mr. Fisher estimates that this forest, if properly protected and the fires are kept out, will yield annually about 200 trees above five feet in girth from an average area of 5½ acres, to which fellings are to be limited according to the above rate of growth. It is hoped to give Mr. Fisher's working plan of this small forest of about 600 acres with next year's report, since the extreme scarcity of Sâl renders the early regulating of the working of this forest particularly necessary to ensure a regular and permanent supply for the district.

Mixed plain and lower hill forests.

192. All the mixed plain and lower hill forests in the Tezpur division are for the present only to be protected from illicit fellings, and no improvements to be undertaken until a greater demand for the kinds of timber growing in them justifies an expenditure on such work.

Boundary work.

193. The southern boundary line of the Balipara reserve has been re-opened and surveyed, and boundary mounds were prepared with Rubber-trees planted on them, so as to ensure the permanency of the line.

General protection.

194. By the above measures, and the general activity of the protective establishment controlled by the divisional officer, further trespass in the reserves has been prevented, and hunters have not attempted this year to burn the Balipara Sâl forest for the purpose of driving out the game; since the proceedings taken last year, and the warning given by the district officer to all inhabitants in the neighbourhood, has here also had the desired effect of making people more careful, and teaching them generally that fires are to be kept out of the Sâl forest, and carelessness on their part will not be overlooked.

A new timber-track opened.

195. Before the Forest Department was organized, the Balipara Sâl forest was resorted to by the tea-planters and others to supply themselves with timber; but these fellings had been stopped, even before conservancy was introduced, on account of the distance that timber had to be dragged to the Mansiri river, about three-and-a-half miles. A track has now been opened by this department direct to the Bhairabi river, which has reduced the distance to one-and-a-half mile.

GOLAGHAT DIVISION.

196. This division includes the Nambor forest reserve and the Mikir Hill forest reserve.

The Nambor reserve.

197. The former has been surveyed during the year by the Topographical Survey of Assam, and its former estimated area of 100 square miles been corrected to 62·93 square miles. Of these there are—

In the Sibságar district	14·25	square miles.
In the Nága Hills Agency	48·68	„

198. This reserve was gazetted in August, 1872, under Act VII. of 1865, but, since the Nága Hills Agency is merely under political control, the 48·68 square miles of the Nambor forest situated in the Nága Hills Agency are not subject to the Forest Act.

199. That portion of the Nága Hills Agency in which the Nambor forest is situated was formerly included in the Nowgong district, and was transferred, for convenience of administration, to the Nága Hills Agency, but Government has by no means abdicated by this transfer the rights it formerly possessed in the soil and its produce.

Addition to the reserves.

200. An addition to the Nambor reserve forest of 326·63 square miles situated within the Nága Hills Agency was proposed during the year, and sanctioned by the Chief Commissioner, but for the above reasons was not gazetted under Act VII. of 1865; and, on account of its proximity to the Nága Hills and the hill tribes who jhoom in the forest tracts near these reserves, it was decided by the Chief Commissioner that this addition to the Nambor reserve should be managed by the Political Agent, Nága Hills, and the Deputy-Conservator of Forests conjointly, under separate rules, which were drawn up by these two officers and approved by the Chief Commissioner, and are recorded in Appendix III.

Survey of village lands in the reserve.

201. The lands of the village of Borholla, in the Nambor reserve, were surveyed, demarcated, and mapped, and a copy of the latter recorded in the office of the Deputy-Conservator and the divisional forest office.

General protection.

202. The three rivers which are the lines of export from the Nambor reserve forests are—

The Dayang.	The Daygurung.
„ Dhansiri.	

On each of these a control-station has been established to watch over the traffic on these rivers; and no timber is allowed to be taken down either of them beyond these stations without a pass from the Assistant-Commissioner at Golághát, if cut in the Sibságar forests, under the district officer, or from the Political Agent of the Nága Hills, if cut in the Nága Hills district outside the reserve.

203. The control-station on the Dayang is situated on the left bank of the river, opposite to the old fort of Jamaguri, eleven miles south of Golághát, and can be reached by road direct from Golághát, or by bridle-path from Barpathar, situated on the road leading from Golághát to Samaguting.

204. The control-station on the Dhansiri is situated at Ohguri, on the left bank of the river, about nine miles south of Golághát, on the road leading to Samaguting.

205. The control station on the Daygurung is situated on the right bank, opposite the village lands of Murphalani, and has been connected with the road leading from Golághát to Samaguting by a road six miles long, opened out by this department during the year.

206. At each of these control-stations, and at the Golághát depôt, a small but substantial inspection hut was built for the divisional officer, and fourteen strong huts in the aggregate for the subordinates of the department, giving shelter and comfort to all, which is so essentially necessary to ensure health in the Assam forests.

207. The watching over this reserve has thus been rendered as effective as this is possible to do with the small establishment entertained, and Mr. Condon deserves credit for the way he has thus overcome the aversion of the subordinates to remaining in the forest, which had caused frequent changes of the employés in the department. During the year, only one case of forest trespass was tried in the Golághát division, in which one person was concerned and convicted.

Growing material.

208. The kinds of timber which are used from these forests are Ajhar (*Lagerstræmia Reginæ*) Nahor (*Mesua ferrea*), and Sam (*Artocarpus Chaplasha*), and these are naturally, as in all mixed evergreen forests, very much scattered; so that there is, comparatively speaking, but very little valuable timber on these large areas; and, since Sâl does not extend as far east as the Sibságar district, and would have to be brought up stream, the early improvement of a portion of these forests is deemed necessary.

Improvement by sowing recommended.

209. This it is proposed to do in a systematic manner, by thinning out of all useless trees and scrub on an area of 200 acres annually, commencing at the northern boundary of the reserve in the immediate neighbourhood of the road leading from Golághát to Samaguting, which is the part of the reserve nearest to the timber depôt and timber markets, and to the head-quarters of the divisional officer, so that the experiments will receive constant competent supervision.

210. The kinds of trees which have hitherto been considered particularly worth planting or sowing in mixed lower hill forests are the following:—

Sam	...	...	... *Artocarpus Chaplasha.*
Ajhar	...	...	... *Lagerstæmia Reginæ.*
Poma	...	...	... *Cedrela Toona.*

211. During the past year, however, the Deputy-Conservator, during his inspection of the Cachar forests; has made particular inquiry into the extensive timber trade carried on in that district and Sylhet, and finds that Nahor (*Mesua ferrea*) is much more sought after and prized by the timber-traders for general work than either Sam (*Artocarpus Chaplasha*) or Poma (*Cedrela Toona*) because it grows longer, straighter, and more cylindrical, and has less sap wood than the former, and is much more durable than the latter.

212. From the Nambor reserve logs of Ajhar (*Lagerstræmia Reginæ*) and Nahor (*Mesua ferrea*) have been worked out for the Department of Public Works, and frequent

complaints were made of the Ajhar timber not being straight or cylindrical, whilst no complaints were made of Nahor timber, although the latter as a timber is inferior to the former.

Nahor or Nageesur preferable to other kinds.

213. For these reasons, the Deputy-Conservator is now of opinion that Nahor or Nagessur (*Mesua ferrea*) should be sown or planted in preference to other kinds, where improvements of lower hill forests are contemplated.

214. This tree has, besides the above, another recommendation for sowing it in lower hill forests,—and this is its hardiness as a seedling and sapling, when it holds its own well amongst the dense vegetation of these forests, and as an older tree it in fact monopolizes the ground, and grows gregariously over large areas, which neither of the other better kinds of trees do.

CACHAR DIVISION.

215. In the introductory portion of this report, paragraph 27 to paragraph 39, a short history was given of the Cachar and Sylhet forests from a conservancy point of view; and in Section I., paragraph 103 to paragraph 170, their present condition and the trade in produce from these forests has been described.

216. It is evident, from the comparatively exhausted state of the Cachar forests, the small extent of the Sylhet forests, and the absolute non-existence of forest in the Bengal districts beyond Sylhet, that it will require the greatest possible vigilance and care to keep up the supply of timber at the rate it is at present being removed by the very extensive trade which exists.

Proposed management of the Cachar and Sylhet forests.

217. For these reasons, the forests still remaining should all be made Government forest reserves, and be gazetted under Act VII. of 1865 as such, and be managed according to the Forest Rules published under that Act. An Assistant-Conservator should be placed in charge of these forests with his head-quarters at Silchar.

218. The position of nearly all the forests along the southern boundary, or the Lushai country, which latter is more or less unsettled, as well as the fact of nineteen tea grants being situated within the limits of the forest area, and the extensive jhooming carried on by the different hill tribes, render it necessary that the forest officer should, in Cachar at least, be placed under the orders of the Deputy-Commissioner in all matters regarding the boundaries and the protection of the forests; whilst, as regards technical matters, such as the treatment and working of the forests, as well as that of accounts and office business generally, he should be under the direct orders of the head of this department.

219. The fact of there being about 200 elephants employed in timber work in the Cachar district, is in itself sufficient to show that the Forest Department cannot undertake the direct working of these forests by Government agency. Neither is our present knowledge of the forests such as to warrant an immediate change from the existing permit system to that of felling and working out timber under direct Government supervision, since this would require a very large establishment of subordinates, the proper employment of which will not be possible to the divisional officer until more information is collected regarding the condition of the different tracts.

220. The present system of granting permits should therefore remain in force, with such alterations as will give the divisional forest officer the greatest possible knowledge of the felling operations carried on in different parts of the district, and thus enable him to control these fellings on the spot in the forest, wherever and whenever he considers it necessary to prevent trees under four feet in girth being felled, and trees not to be removed from being wantonly destroyed.

221. The divisional forest officer should, up the end of the financial year 1875-76, employ himself in getting a knowledge of the forest reserves and the timber works carried on in them, the boundaries of the forests, and the different grants within them, and their demarcation, and take care that no further encroachments by jhoom cultivation take place; at the end of that time he should, in addition to the above work, be placed in charge of the collection of tolls on timber brought down the different rivers.

222. For reasons given in paragraph 144 of this report, there should be a toll-ghât established at Sonaimukh as well as at Scaltek. All timber brought from the forests above these ghâts, and which it is desired to land before reaching either of these ghâts, should be passed at such place, on prior application being made to the forest officer, stating

the number of logs which it is intended to land. Such timber should not be allowed to be converted until measured and paid toll for at the authorized rates, on receipt of which a pass would be granted for such timber, as is done at the toll-stations.

223. As stated in paragraph 143 of this report, the rates are at present levied in a rather unequal manner, as, for instance, every cubic foot of inferior wood in excess of twenty-four hands in length, or, say, in excess of thirty-six cubic feet, has to be paid for at the rate of annas 3-4, whilst the longest Jarul log pays only annas 2-6 per cubic foot.

Proposed rate of toll.

224. It has therefore been proposed that the duty be fixed per cubic foot of the first eight kinds named in Appendix I., Part 2, at 4 annas—and of all other woods at 2 annas in the log, and if converted timber one-fourth in addition to the above, or the first eight kinds at 5 annas per cubic foot, and other woods at annas 2-6. Since this measurement might not be readily understood by some of the timber-traders, it should be calculated for logs of different sizes, and such tables of rates be kept at the toll-station and the forest office in Silchar for distribution.

225. The above rates are the same as those paid in Assam for trees standing in the forests, calculating the average cubic contents per tree at twenty-five cubic feet, and the cost per first class tree at Rs. 6, and that of second class trees at Rs. 3.

226. Considering the scarcity of timber in Cachar and Sylhet, and the great demand for it, these rates are very low, but it is considered better that they should be fixed at this rate for the present, since they are slightly above the existing ones; and the system of protection and control, as at present proposed, is not an expensive one; whilst raising the rates very much at once would greatly disturb the existing traders. As our knowledge of the forests and their contents increases, and more expensive measures become necessary, these rates can be re-considered.

227. Timber from Manipur and the Lushai country pays at present at Sealtek the same rate of toll as timber from the Government forests, but then the present toll is only a transit duty, whilst the toll it is proposed to levy in future is to represent the value of the timber actually taken from the Government forests,—both reserve and Government forests outside the reserves.

228. For the above reasons, it is proposed that timber from Manipur, and covered by a proper pass from the Manipur authorities, should pay only one-half of the above rates, so as to cover the cost of control of timber brought from Manipur.

229. The same exemption can, however, not be made as regards timber from the Lushai country, since no proper authority exists there to grant passes; and the establishment of control-stations at the Lushai boundary increases the cost of protection of the Government forests. These circumstances warrant the levying of the same toll on timber from the Lushai country as on timber from the Government forests, as a protective measure alone, and are no new measures, but simply a confirmation of the existing rule. Timber from private forests should, as hitherto, pass free of any charge, if covered by a proper pass from the owner of such land, describing in detail the quantity and kind.

230. The rates on bamboos, canes, and thatching-grass it has been proposed to leave as they are levied now, and detailed in paragraph 138 of this report.

231. Besides the above, charcoal is a commodity in very great demand in the Cachar district, and requiring exceptional care and husbanding of the sources of supply, to protect the tea industry from any falling short of, or excessive cost in procuring it, the value being already Re. 1 to Re. 1-4-0 per maund.

For the present, most of the planters have forest of their own to make charcoal; but where this is not the case, and Government forests are resorted to, it should pay a tax of 2 annas per maund, as is charged in Assam. This can also be levied at the toll-stations; but whenever it is more convenient for a planter, or any other person, to have charcoal carried by land, application should be made for a pass to the forest officer before removing it from the spot where it has been made. The manufacture of charcoal would not be permitted without previous permission being obtained from the forest officer, whose duty it would be to define properly the locality where it may be prepared, and prohibit the telling of all kinds of wood suited for superior purposes.

232. The Sylhet forests should remain closed for the present, until the claims of the mérishdars have been decided by the Deputy-Commissioner of that district.

233. Sonaimukh, where it is proposed to establish the new toll-station, is situated at the confluence of the Sonai and Barák rivers, about twenty-two miles above Silchar by river, and nine miles by road.

Any forest-produce paying toll at this station would be furnished, as a matter of course, with an acquittance-pass, to prevent any further claims being made at Scaltek, or lower down the river.

Fees paid by wood-cutters.

234. As regards the fees paid by wood-cutters, it was proposed in 1872 by the Commissioner of Dacca to be Rs. 5 for every party not exceeding ten men, and 3 pie a day for the time they remained in the forest. The Lieutenant-Governor considered the daily fee of 3 pie per cooly as high, and thought it better to raise the original fee, but directed that the fee of Rs. 5 should remain so at that time until this permit system was in proper order. Since then it has remained at Rs. 5, or 8 annas per man for six months. In Manipur men have to pay 1½ annas per day for the privilege of being allowed to cut wood, and 1 anna per day for cutting bamboos.

235. This payment of a fee by the wood-cutters is considered of great importance, and it has been proposed to raise it to Re. 1 per man for six months, to give more weight to the permission thus granted to cut timber, bamboos, and cane, and that each man's name be registered in a bound book at the forest office in Silchar, with particulars regarding the forest where he is to work, the man by whom he is employed, and the name of his village, so as to give the forest officer a thorough knowledge of what is going on in the different forests, and the means of bringing home to any particular party the cutting of trees of less than four feet in girth, or the wanton destruction and waste that may be noticed by himself in the forest, or be reported to him by his subordinates.

236. A certificate should be granted on payment of fee to every person separately, and this certificate should not be transferable. These certificates would be granted for six months as hitherto, but should be limited to the period from the 1st of January to the 30th of June, and from the 1st of July to the 31st of December. Certificates granted at any time after the 1st of January, and previous to the 30th of June, ceasing to be valid on the latter date, and any certificate granted after the 1st of July, and previous to the 31st of December, ceasing to be valid on the latter day.

Proposed tax on elephants dragging timber.

237. On the same grounds the levying of a fee of Rs. 20 per annum from every elephant employed in timber-dragging, as proposed by the Deputy-Commissioner of Cachar, would be desirable; each elephant's name and description, the name of its owner, and the residence of the latter, the forest in which it is to work, and so forth, being entered in a bound register in the forest office at Silchar, and a certificate be granted for each elephant on payment of fee; this certificate not to be transferable to any other animal except the one named in it, and becoming invalid on the 31st of December of the year in which it was granted.

238. Any wood-cutter remaining at work on his certificate after the 30th of June or the 31st of December, as the case might be, and any elephant remaining at work on the certificate beyond the 31st of December, would be treated as forest trespass, and punished under Act VII. of 1865.

239. Permission to wood-cutters to proceed to beyond the Inner Line would in every instance require the sanction and countersignature on the certificate of the Deputy-Commissioner of the district.

Proposed establishment.

240. The permanent subordinate establishment to be employed under the Assistant-Conservator of Forests in charge of the Cachar forest division, as at present applied for, is the following :—

One forester	50
Seven watchers on Rs. 7 each...	49
Office Establishment.	
One writer	40
„ peon	7
„ dâk-runner	7
Total ...	153

This will suffice for the financial year 1875-76; but from the 1st April, 1876, the following increased subordinate establishment will be necessary for the management of the toll-stations, and other measures, as enumerated above, under the direct management of the Assistant-Conservator in charge of the Cachar division.

Conservancy.

		Rs
Two forest rangers, on Rs 50 each ...	... ...	100
Twelve forest watchers, „ 7 „ ...	... ...	84

Toll-ghât.

Two toll-collectors, on Rs 50 each	... ...	100
Six watchers, „ 7 „	... ...	42

Office Establishment.

One writer, on Rs 40 per mensem	... ...	40
One peon, „ 7 „ ...	... ...	7
One dak-runner, „ 7 „ ...	... ...	7

Boat Establishment.

One manjee, on Rs 12 per mensem ...	... ...	12
Three oarsmen „ 7 „	... ...	21
	Total Rs	413

or Rs 4,956 annually.

241. The conservancy establishment above quoted would be distributed as follows :—

One forest ranger and six watchers in charge of the eastern sub-division, consisting of all the forests east of Silchar, and situated on the rivers Jiri, Barák, Sonai, and Rukmini.

The forest watchers to be placed on the following rivers:—

Two on the Jiri river.	One on the Sonai river.
Two on the Barák „	One on the Rukmini „

One forest ranger and six watchers in charge of the western sub-division, consisting of all the forests west of Silchar, including those in the Sylhet district, and situated on the rivers Jalinga, Katakhal, Dhaleswari, Singla, and Lungai.

The forest watchers to be placed on the following rivers :—

One on the Jalinga river.	One on the Dhaleswari river.
Two on the Katakhal „	One on the Singla

One on the Lungai river.

The toll-ghât establishment would be distributed as follows :—

At Sealtek ghât—

One toll-collector and three watchers.

At Sonaimukh ghât—

One toll-collector and three watchers.

242. The above establishments, as well as that for the Assistant-Conservator's office, are the most economical possible to ensure efficiency in working, and to prevent the continuance of the present ruinous timber-felling in the Cachar and Sylhet forests. The boat establishment is absolutely necessary for the use of the Assistant-Conservator, since the largest proportion of the forest can only be reached by river, no roads existing.

Duties of the divisional forest officer.

243. Whilst the Assistant-Conservator in charge of the division is thus employed in controlling the timber works in the different forests, checking excess and waste, preventing jhoom cultivation within the limits of forest reserves, and superintending the collections of revenue at the two toll-stations, he would at the same time collect accurate data regarding the quantity and kinds of timber removed from the different forests, and carry out, whenever the seasons permit, a systematic examination, demarcation, and description of the reserves, commencing with the tract on the Jiri river above Jiri ghât, and taking the forests on the rivers Barák, Sonai, Rukmini, Jalinga, Katakhal, Dhaleswari, Singla, and Lungai in succession; no new tract being commenced until the previous one has been completed and reported on.

244. This examination and description of the forests should furnish the following information, as ordered by the Government of India:—

(1.) Area.
(2.) Boundaries, and the properties with which they march.
(3.) Soil (geological description).
(4.) General description of the forest, as to species, age, and condition.
(5.) Timber-depôts.
(6.) Timber markets, and large towns in the vicinity.
(7.) Lines of export.
(8.) List of villages or grants of waste land remaining within the forest boundaries, stating the limits of each, and any rights in the forest possessed by the inhabitants.
(9.) Statement of any rights possessed by the inhabitants of the adjoining districts in respect to grazing cattle, fuel, grass, and leaves, bamboos, &c.
(10.) A map of the reserve.
(11.) A working plan.

245. The information under the last head would, for the present, comprise the following data only:—

(1.) Area of each block examined, which can be ascertained with comparatively little labour, since the districts have been surveyed by the Revenue Survey, and maps are available.
(2.) Growing material in the different blocks examined, which will be ascertained in the usual way by linear valuation surveys, extending over at least five per cent. of the total area.
(3.) Rate of growth of the different kinds of trees felled and removed from these forests, which necessarily must include a large number of species, and is to be ascertained by the counting of concentric rings.

The above information, carefully collected, will supply the data on which the working plan has to be based, or, in other words, will enable us to improve the forest systematically, and to calculate the quantity of timber that can be removed annually without risking the deterioration of the forests, which is the chief aim of all forest conservancy measures.

246. These are the outlines of the real forest work,—how it should progress in the proposed reserves of the Cachar forest division,—and will give full employment to a forest officer and the above subordinate establishment to secure the management of these most important forests according to a sound system, not relying on occasional general reports of inspection, or accounts given in diaries only, as even the best of them can only be superficial.

SECTION III.—PLANTATIONS.

247. In Assam, plantation works are concentrated chiefly in three places, which are—

(1.) The Kulsi Plantation. | (2.) The Charduar Plantation.
(3.) The Shillong Plantation.

Besides these, there is a small experiment in Caoutchouc planting carried on, on the Bamuni Hill, near Tezpur, and of Teak planting at Makum, on the Upper Dehing, both experiments only intended to obtain data of growth for comparison with the main plantations. In addition to these, the small experiments in Cinchona cultivation, started in these hills by the Superintendent of the Botanical Gardens, Calcutta, in 1867, near Nongklao and Jirang, were placed during the year in charge of the Forest Department.

248. The Kulsi plantations are the head-quarters of the officer in charge of the Gauháti division; the Charduar plantation is within five miles of the head-quarters of the officer in charge of the Tezpur division; and the Shillong plantations, in charge of the Deputy-Commissioner of the Khási and Jaintiá Hills, are supervised, *ex-officio*, by the Superintendent of the Shillong farm, who has his head-quarters at Shillong, and is never absent for any length of time.

The small experiment in Caoutchouc planting on the Bamuni Hill, near Tezpur, is in charge of the Tezpur divisional officer, who frequently visits it; and the experimental Teak plantation at Makum, in the Golághát division, is merely protected, for which purpose one watcher on Rs 7 is entertained, the Deputy-Conservator of Forests, Assam, inspecting the plantation and measuring the trees once a year.

At the Cinchona plantations near Nongklao and Jirang no extensions are made, and only two watchers are kept for keeping the ground clear and the fire out.

249. It will be seen from the above that plantations in Assam are not scattered in little patches all over the country, but are concentrated chiefly in three localities, where they receive constant competent supervision from the officers in charge of them. They are of three descriptions:—

(1.) Caoutchouc Plantations, | (2.) Timber Plantations,
(3.) Cinchona Plantations,

and will be noticed under these heads in the different divisions.

The area of the different plantations, according to species, the forest divisions in which they are included, the area brought under cultivation previous to the 1st of April, 1874, and the area brought under cultivation during the year, together with the expenditure incurred on each plantation, are exhibited in the tabular statement attached.

GAUHATI DIVISION.

Caoutchouc Plantations.

250. The method of planting adopted in the Kulsi Caoutchouc plantation is the following:—

Lines twenty feet in width and fifty feet apart are opened out in mixed, plain, and savannah forest, and the trees are planted out on these lines at distances of twenty-five feet.

251. The plants in this plantation were examined by the Deputy-Conservator on the 26th of April, 1875, and the countings showed two per cent. of failures, which were filled up the same day. Nothing could surpass the healthiness and vigour of the young trees, whose only enemies are the deer, which has made fencing necessary,—but the plants will soon have grown beyond the reach of them.

252. In addition to the above area, thirty acres have been prepared for planting during last cold season; but, as the weather up to the end of April was very dry, the planting is only being done now, and these thirty acres have therefore not been brought on the register of area of Caoutchouc plantations before the end of the financial year 1874-75.

253. This locality was not chosen for the first plantation because it was well suited, but on account of the season being far advanced, and there was a forest officer on the spot to look after it. Kámrúp is, compared with other districts in Assam, dry, and it is not intended to have Caoutchouc plantations on a large sale in this district on this account, since the yield will be proportionately small. All land in the Kulsi plantation reserve not suited for timber plantations will thus be made use of for Caoutchouc plantations, which will make the total area about 100 acres. This will furnish a field for experiments in tapping, and enable us hereafter to draw comparisons between the yield of Caoutchouc from trees in this district, and that from the more favourably situated Charduar plantation at the foot of the Himalayas, in the Darrang district, eighteen miles north of Tezpur.

254. A nursery for cuttings, to plant out the thirty acres prepared for Caoutchouc at the Kulsi plantation, was prepared, and stocked with cuttings in January, of which 1,790 were rooted and growing well by the end of March.

255. In the Kulsi plantation no separate establishment has been entertained for this particular work; but the Caoutchouc plantation is debited with one-fourth of the cost of the whole plantation establishment.

256. The area of the Caoutchouc plantation at the Kulsi at the end of 1873-74 was thirty-five acres, on which an expenditure of Rs. 377-13-0, or Rs. 10-12-8 per acre, had been incurred up to that date. The area got ready for planting last year at the Kulsi is thirty acres, which, together with improvement and conservation of the plantation of 1873-74, cost during the financial year 1874-75 Rs. 605-14, or Rs. 15-2-1 per acre for two years, which has become so high on account of the nursery, the greater part of which, and especially the seed-nursery, was destroyed by floods last year, and the great difficulty in procuring suitable branches for cuttings in this locality.

2. Timber Plantations.

257. The area under cultivation at the end of 1873-74 at the Kulsi plantation was the following:—

Teak	...	...	...	8 acres of	1872-73.
„	...	...	...	25 „	1873-74.
Sissu	...	...	...	10 „	„

To these were added, during the year 1874-75—

Teak	...	...	...	20 acres.
Sissu	...	...	...	10 „

This makes the total of timber plantation at the Kulsi at the end of 1874-75—

Teak	...	...	...	53 acres.
Sissu	...	...	...	20 „

258. The twenty acres of this year's extension of Teak were sown on a low undulating hill west of, and immediately adjoining, the plantations of 1872-73 and 1873-74. The planting spots were prepared at distances of four feet by four feet, and the seed, of which eight maunds were received from Burmah, was sown in the first week of July, putting five to ten seeds on each planting spot. Nursery-beds for the filling up of vacancies were also prepared, 200 feet in length and four feet in width.

259. The seed received from Burmah was very bad, which was reported by Mr. Aylmer as soon as it arrived, and confirmed by the small percentage which eventually germinated, both in the plantation and nursery-beds.

260. The countings made by the Deputy-Conservator on the 11th of November in this plantation showed the following results:—

Total number of planting spots examined	...	...	1,455
Number of plants alive	...	...	994
„ failures...	...	...	461
Percentage of plants alive, 69 } „ failures, 31 }	...	...	100

The vacancies had only been filled up on a small portion of the plantation, because the seed failed to germinate in the nursery-beds as well, and the plantation would have been even worse if it had not been for a maund of Teak seed, collected in Gauháti, which germinated well.

261. An experimental sowing of Sam seed was made, to plant together with this year's Teak, much of which failed on account of the seed having been dried too much before sowing. There were 214 seedlings alive, and more germinating in November, when the plantation was inspected, and the seed is in future to be sown as soon as collected, with the pulp around it. The cost of this experiment was Rs 15-10-0.

262. The growth of the trees in the Teak plantation of 1872-73 is excellent, and the ground completely covered; there is, however, an inclination of the trees to branch at an early age, which is a disadvantage, and can only be counteracted by early and judicious pruning.

The measurement of 100 trees on the 12th November, 1874, gave the following results:—

Average height	12·7 feet.
Average girth, measured one foot above the ground,	6·6 inches.

The seed of these trees was sown at stakes, distant six feet by three feet.

263. The growth of the trees in the Teak plantation of 1873-74 is also good, but not so equal as in the plantation of 1872-73. This is owing to the Assam seed having failed at first in this plantation, and the better portion having received more cultivation.

The measurement of 100 trees in the inferior portion, sown at four feet by four feet, showed the following results:—

Average height per tree	7·1 feet.
Average girth, measured one foot above the ground	3·6 inches.

The measurement of 100 trees in the better portion, sown six feet by six feet, showed the following results:—

Average height per tree	7·8 feet.
Average girth, measured one foot above the ground	4·7 inches.

264. The borer still exists in the plantation, and although not so destructive as at first, becomes very troublesome every now and then, and destroys occasionally a tree entirely. All searching for a perfect insect by Mr. Aylmer proved unsuccessful.

265. The expenditure on the twenty acres of Teak sown last year, and the clearing of another twenty acres for sowing in 1875-76 has been ... Rs 1,148 10 6

The protection from fire of the whole Teak plantation, fifty-five acres, was	„	35	12 0
Improvement and conservation of the Teak during the year was	„	37	15 0
Roads and bridges were	„	52	3 0
Salaries	„	139	8 0
Total expenditure on Teak in 1874-75 ...	Rs	1,414	0 6

266. In addition to these a large nursery has been prepared for Tun (*Cedrela Toona*), for planting with Teak, and there are at present several thousands of seedlings alive, and more germinating. The expenditure on Tun nurseries was Rs 4.

267. For reasons stated in paras. 211 to 213 of this report, it is also intended to plant Nahor (*Mesua ferrea*), in preference to Sam, with Teak in future.

268. The Sissu plantation of 1873-74 had an area of ten acres added to it, and the trees in both were growing well until the first week of July, when an exceedingly heavy fall of rain in the Khási Hills caused a sudden flood in the neighbourhood of the Kulsi river, and the Sissu plantation had ten feet of water in it, which remained for three days, and washed out the trees on about two acres entirely, and on the rest destroyed most of the weakly plants, whilst the stronger plants seemed rather the better for the flood than otherwise.

269. The countings made gave the following results:—

Total number of planting spots examined	...	1,577
Number of plants alive	...	1,399
„ failures	...	178
Percentage of plants alive, 88 } „ failures, 12 }	...	100

The height of fifty trees was, in the aggregate 218 feet 8 inches, which gives an average height of 4 feet 4 inches. It is not intended to make any extension during 1875-76, but to grow seedlings only in nurseries, and to let these get a year or two old before transplanting them, when they will be better able to combat with the heavy grass and accidents like the flood which happened during the year under notice. The nurseries thus prepared have at present 65,000 seedlings in them alive.

270. The expenditure on Sissu during the year was the following:—

	Rs	As.	P.
Formation	251	7	9
Salaries	56	8	0
Total ...	Rs 307	15	9

271. By the order of the Chief Commissioner, twenty plants of *Pongamia glabra* were sent from the Botanical Gardens, Calcutta, to the Kulsi plantation, of which nineteen reached the plantation alive, two died, and seventeen are looking healthy, and have made vigorous growth.

TEZPUR DIVISION.

272. In this division, the plantations are of Caoutchouc (*Ficus elastica*) only, and are situated as follows:—

In the Charduar	180 acres.
On the Bamuni Hill, near Tezpur	10 „

In the former locality, it is intended to have the Caoutchouc plantations on a large scale, and the chief experiments have been carried on there, the results of which are recorded here.

The Propagation of Ficus elastica.

273. Figs are perhaps, of all the forest trees in India, the easiest to propagate; but, for all this, the past year's experience has taught us that *Ficus elastica*, both as seedling and cutting, is very susceptible of injury from too much shade, or drip from trees causing excessive wet about its roots, which experience cost us a number of young plants, but thus established a fact which is of the utmost importance in the propagation of this tree.

274. The seed sown on the Charduar Caoutchouc plantation on the nursery-beds prepared with broken bricks, broken charcoal, and with earth only, as described in last year's report, germinated profusely on the 25th of April, 1874, having at first the appearance of cress, the cotyledons being very small. The artificial shading over these seed-beds, however, caused drip and excessive moisture, which proved fatal to many of the seedlings before the cause of the mischief was recognized. The number saved amounted to about 1,200, which were, on an average, of the undermentioned sizes as they grew :—

On the	27th June, 1874	9-10ths of an inch.
„	12th August „	1 inch and 2-10ths.
„	10th September, 1874	5 „ „ 7-10ths.
„	21st April, 1875	2 feet 10 inches.

It should here be mentioned that the last of these was a seedling which had been left undisturbed in the seed-bed, and was exceptionally vigorous in growth.

275. The seed sown germinated most freely on the broken bricks, next best on the charcoal, and least on the earth; and, as the seedlings grew, those on the broken charcoal succeeded eventually best of all, whilst those on earth perished,—which, however, is due partly to the large trees left standing in the nursery, and the artificial shade got up, for which there proved to be no necessity. No perceptible difference was noted in the germination of the seed where the whole fruit had been sown and the fruit had been crushed, except that in the former case the young seedlings were very much crowded. They are remarkably hardy as long as they are not exposed to too much shade and drip from above, causing excessive moisture about the roots.

276. During the last cold season most of them have formed a thick tuberous root, resembling those of epiphytical *Rhododendron* and *Vaccinium*, by which they no doubt are enabled to stand drought during the dry season much better than cuttings.

277. During February and March, 1875, a large nursery, measuring 36,000 square feet, has been prepared in the Charduar plantation, by raising beds, four feet in width and one foot high, and covering them with 160 maunds of broken charcoal. All trees had been cut down in this nursery, and no artificial shade of any description has been given to the seed-beds this spring. On these beds six maunds of seed were sown, the first of which germinated on the 18th April, and they look remarkably well. A small quantity was also sown on earth alone, to give this mode of raising seedlings a further trial, since it is more economical than where charcoal is used.

278. About 400 seedlings were brought in by Miris, which had evidently germinated on the ground; and these men affirm that the seed of *Ficus elastica* germinates freely on the ground wherever there is sufficient light. Since these seedlings were fetched from the Akha Hills, immediately north of the Charduar plantation, it is easily understood that the seed will germinate on steep hill sides, where there is light; whilst, for the same reason, in the dense evergreen forests along the foot of the hills this is a very rare occurrence. That the seed of *Ficus elastica* will germinate and grow on the ground, is further borne out by the young trees met with in tea-gardens, where the ground is kept clear.

279. The cuttings made in spring, 1874, suffered in a similar way from drip from the artificial shade and trees left as a precaution in the nursery, which has taught us the same lesson with regard to cuttings as with the seedlings. This experience, after all, was very cheaply bought, since the cost of the nursery was trifling, and we managed to save 2,000 cuttings, which were sufficient for the plantation. The best time for making cuttings in Assam is, no doubt, from the middle of January to the end of May, it depending on the rainfall during the latter three months which of the cuttings will do best; those made in 1874 after May failed almost entirely. The earlier in the season, before the young shoots to be used have started growth, the better chance they have of success, and at this time young terminal shoots will grow well; whilst, after the trees from which the cuttings are taken have commenced growth, which happens about the end of January, the lower, somewhat harder, portion of the young branches succeeds

better than the soft terminal shoots. Only young and vigorous branches from lopped trees are used, and they are cut from one to two feet in length, and are put three inches in the ground. All scrubby branches from old trees almost invariably fail. The branches from young trees are still better than those of lopped trees; but these are rarely to be had now. After our young trees are two or three years old, they will furnish any quantity of shoots best suited for cuttings.

280. The making of the cuttings in spring, 1875, was begun in the end of January, and continued until the 19th of March. The beds for the cuttings were raised one foot high, all the paths between the beds being so constructed as to prevent water resting; and, as an extra precaution, the earth was mixed with river-sand, since it is rather clayey, retaining moisture longer than suits the cuttings. The nursery for cuttings prepared in this way measures 25,200 square feet. The same artificial shading of grass was employed as last year, but was removed every afternoon, and not replaced until about nine o'clock in the morning, by which more light was ensured to the cuttings during part of the day, and they had the benefit of the night dew. On the 7th of March the first rain fell, and continued for some time, which opportunity was taken advantage of to harden off the cuttings, and to remove the artificial shading entirely. Until rain fell, all were watered twice a day. The success of the harder cuttings has been general, whilst amongst the soft young shoots there have been many losses. On the whole, the propagation from cuttings has this spring been most successful, there being at the Charduar plantation 16,401 cuttings alive out of 21,213. This is 22 per cent. of failures, which is insignificant, considering that many of the cuttings were necessarily still inferior,—young trees, which are the best for cuttings, being extremely scarce.

The Growth in Plantations of Ficus Elastica.

281. The Charduar plantation extended over an area of 180 acres in the year 1873-74. The plants in this plantation were examined by the Deputy-Conservator on the 21st of April, 1875. The countings made all through the plantation showed 3½ per cent. of failures. In addition to this, 140 acres more have been got ready, and another sixty acres are in course of clearing for plants. None of this area has, however, been planted, since the rains will be more suited for this work, and no additional area has, for the above reason, been brought on the register of area of Caoutchouc plantations before the end of 1874-75.

282. The method of planting adopted in the Charduar plantation was the following:—

Lines twenty feet in width and 100 feet apart were opened out through lower hill forest, and trees were planted out on these lines at distances of fifty feet. The width of the lines proved insufficient as soon as the rain set in, and the excessive shade and drip from the trees on either side of the line proved injurious, and in many cases fatal, to the plants.

283. The planting on split stumps of trees, and in earthenware rings placed with the widest opening on stumps, was suggested by the Chief Commissioner, and proved very successful in low situations, counteracting the excessive wet on the ground; but vigorous growth was not insured until more light was admitted.

284. All the lines of last year's plantation were therefore opened to forty feet in width, and the effect on the young trees has already been most beneficial, so that nothing could surpass the vigour and healthy appearance of the trees; and, as far as the planting on lines opened out through the forest goes, it certainly is a perfect success. The ground on these lines is not cleared, except just around the plants, but the opening out of bridle-paths has become necessary, to save time in going over the plants, since frequent inspection is the only way to prevent any vacancies remaining in the plantation. The growth of low jungle or scrub in these lines has not been such as to necessitate subsequent clearing.

285. The opening out of these lines to double the width has, however, doubled the cost of this, the chief work in the plantation; and, since the daily increasing demand for labour on the tea-gardens has induced the planters to pay absurdly high wages, it is making local labour, which only is suited for the Caoutchouc plantation work, scarcer every day.

286. For this reason, experiments have been started to plant the young trees in strongly-made cane baskets, and to place these in the forks of trees. Only seedlings are used for this mode of planting, since they soon form thick tuberous roots, and thus become more fit to combat with the comparative dryness to which they are exposed in the tops of trees in the dry season. The first of these were planted on the 25th January, 1875, in trees near the nursery, and on the 21st April, 1875, they looked everything that could be desired. This mode of planting would only necessitate a small bridle-path being opened through the forest, instead of lines forty feet in width, and is estimated to reduce the cost of the creation of Caoutchouc plantations on a large scale, including survey, formation, conservation, roads, buildings, and salaries, from ~~Rs~~ 10 to ~~Rs~~ 5 per acre.

287. The only objection to this plan is the difficulty of inspection, and without constant examination of the plants no satisfactory results can be reckoned on. This it is hoped to overcome by having every line numbered, and every tree on which a Caoutchouc-plant has been placed, marked. These lines will then be regularly gone over at least once in two months, and the result placed on record in the plantation journal. After a year or two the plants will be sufficiently large to render the climbing of trees unnecessary, which latter will be the only difficult task in the examination of the plants; but it is considered of such importance during the first year or two, as to justify high pay to the men who have to do this work.

288. This mode of growing *Ficus elastica* it is intended to introduce only on the ground of economy and the growing scarcity of labour, and not because it is believed that this tree grows naturally as an epiphyte only; for trees which germinate on the ground are said to be not at all rare in the Akha Hills north of the Charduar plantation; and the Caoutchouc collectors who go beyond the British boundary into these hills will have it that such trees, although few in number, grow larger than those which commenced life as epiphytes, between the branches of other trees.

289. The Deputy-Conservator himself has never seen but one tree which had undoubtedly germinated on the ground, but then the want of light in the dense forest along the foot of the hills renders it impossible for trees to grow in this way, as proved by the seed experiments. The specimen above-mentioned, which had germinated on the ground, had a true stem, cylindrical in shape, and measured sixteen feet in girth thirty feet above the ground, but this had not prevented the tree from throwing out great numbers of aërial roots, descending from branches fifty feet above the ground. Some of these aërial roots measured from six to eight feet in girth at distances of twenty feet from the stem, and had established themselves firmly in the ground, like the tree itself.

290. Neither does *Ficus elastica* in Assam, if planted in the ground, remain smaller or more destitute of large aërial roots than trees which grew first as epiphytes, as has been stated. The measurements given below will show that the epiphytic growth of a *Ficus elastica* is not by any means essential,—for, after all is done and said, this tree is only epiphytical in early life for a comparatively small number of years, after which it has its roots in the ground like any other tree. Natives will have it that the aërial roots of young *Ficus elastica* in the Charduar reach the ground in the third year.

291. To corroborate the above, and to ascertain the distances at which the young Caoutchouc-tree should be planted, inquiry was instituted regarding the age of the largest tree planted in Tezpur, and measurements made of this tree, which were as follow:—

Age of tree	32	years.
Height of tree	110	feet.
Diameter of crown	140	„
Circumference of the centre mass of aërial roots surrounding the stem	70	„
Distance of outermost aërial roots from stem	80	„

There were over a hundred aërial roots, the five largest of which measured, each respectively, 6 feet, 4 feet, 4 feet, 3½ feet, and 3 feet in girth five feet above the ground. These measurements show the size and rapid growth of *Ficus elastica*, planted in the ground in Assam, which in the forests at the foot of the hills must be even much greater than in the station of Tezpur, and is not less than that of epiphytic trees.

292. As the roots spread out in the soil very near the surface, to a distance of 150 feet and more, and form a thick network, it is considered close planting will seriously interfere with the free development of the roots and growth of the young Caoutchouc-trees, and unless vigorous growth is ensured no yield of Caoutchouc can be expected.

It is, however, intended to have the trees on all the area at present under cultivation planted at twenty-five feet distances in the lines, instead of fifty feet, so as to have a number of young trees available for experiments in tapping, to ascertain the yield from young *Ficus elastica*. It is thus intended to have every alternate tree killed by tapping at the time they begin to interfere with the growth of those it is intended to let grow to maturity.

293. The tree measured in Tezpur is exceptionally large, and, to all appearance, not only healthy but luxuriant; but, for all this, it yielded next to no Caoutchouc when permission was given by the proprietor to one of the traders in the bazar to tap it. This latter fact the Deputy-Conservator does not attribute, as Docter Schlich, the Conservator of Forests, Bengal, and Dr. King, the Superintendent of the Calcutta Botanical Gardens, do, to the fact of the tree having originally been planted in the ground, but to the locality in which it grows, which will be further remarked on under the head of "Yield of *Ficus elastica*."

294. The above fact of this luxuriant tree in Tezpur not yielding any Caoutchouc, and similar results of experiments in tapping trees in Gauháti, points to the great necessity for a most careful selection of the localities for Caoutchouc plantations; and no greater mistake could possibly be made than to start plantations of *Ficus elastica* in any part of Bengal with the view of producing Caoutchouc, as suggested by Dr. Henderson, or to draw any conclusions regarding the way it should be cultivated from the appearance of trees planted in Bengal; for, although the trees will grow in any part of Bengal, Caoutchouc there would be next to none.

295. To ensure a sufficiently large area of land being maintained as forest for Caoutchouc plantations, proposals for the reserving of an area of about 140 square miles in the Charduar north of Tezpur were submitted in the spring of 1873, and are under the consideration of the Chief Commissioner.

296. The general condition for the healthy and rapid growth of the young trees of *Ficus elastica*, as detailed above, are then—

First.—Perfect drainage about its roots, and looseness of soil, so as to admit the air readily, the geological composition of the soil not affecting the trees as long as the above conditions are fulfilled; but it should not be gravel or sand, since all Caoutchouc-collectors state that it produces much smaller quantities, even in the best localities.

Second.—Plenty of light, without decreasing the moisture of the air by the admission of it.

Third.—Heat and moisture combined, or what is commonly termed a close and steamy atmosphere.

297. The districts in Assam suited for Caoutchouc plantations are—

(1.) The Darrang District.
(2.) „ Nága Hills „
(3.) „ Lakhimpur „

None but the moist evergreen forests along the foot of the mountains should ever be chosen for Caoutchouc plantations.

298. The establishment entertained at the Charduar Caoutchouc plantation, including the small experiment near Tezpur, was the following:—

One Mohurrir, on ~~Rs~~ 14 per monsem, for nine months.
„ Mohurrir, „ 20 „ for two months.
„ Watcher, „ 7 „ for 9½ months.

299. The area of the Caoutchouc plantation at the end of 1873-74 was 180 acres, on which an expenditure of ~~Rs~~ 415-3-6, or ~~Rs~~ 2-4-10 per acre, had been incurred up to that date. The area planted in 1874-75 was ten acres near Tezpur, and 140 acres have been got ready for planting at the Charduar plantation. In addition to this, all the lines of last year's plantation have been opened out to double the width; bridle-paths have been opened out along each line; the plants been fenced in; and large nurseries for

cuttings and seedlings been prepared; the cost of which during the financial year 1874-75 was in the abstract as follows:—

	Rs.	As.	P
Demarcation	43	11	0
Formation	2,084	3	0
Protection from fire	24	12	0
Improvement and conservation	505	6	3
Fencing and enclosing	193	9	6
Roads and bridges	205	10	0
Buildings and offices	607	2	0
Salaries	232	10	0
Total Rs.	3,896	15	9

or Rs. 13-1-0 per acre for two years, which is also above the average cost on account of buildings, roads, and bridges, as well as the large nurseries which had to be prepared at starting. For all this, the cost of the Caoutchouc plantations, even at Rs. 10 per acre, as now estimated, is very small, compared with other plantations.

300. The cost per acre, if planted in baskets to be placed in trees, is estimated at Rs. 5; but, as the experience gained in the latter mode of planting is as yet small, this estimate must be considered subject to correction hereafter.

THE YIELD OF FICUS ELASTICA.

301. Amongst the different conditions on which the yield of the *Ficus elastica* depends, stands foremost the locality in which it is grown.

When first inquiry was made, in 1869, from the Caoutchouc-collectors regarding the yield of the tree in different localities, they stated that it would yield most in the hills; next best immediately at the foot of the mountains; and that this yield diminished according to the distance from the hills the Caoutchouc-tree was growing in the open country, or even on the banks of the Brahmaputra, where it was said to yield little or none. It was in accordance with this information that the Charduar plantation was started, as being in one of the most favourable localities in Assam. Subsequent and frequent inquiry has been made on this subject, and the collectors now say they get more at the foot of the mountains than in the hills. Whichever is the correct statement, the difference in quantity yielded by trees growing in the plains along the foot of the mountains and those growing on the lower hills is but trifling; whilst, as the forests along the foot of the mountains are left, and the open country is entered, the quantity diminishes very rapidly, until, on the banks of the Brahmaputra, in the stations of Tezpur and Gauháti, as mentioned above, trees which had not been tapped before were tapped without yielding any Caoutchouc worth speaking of; thus substantially proving the above information to be correct.

302. The next question raised during the last year is—Will *Ficus elastica* yield equally if tapped from the stem or aërial roots? On this point, in Assam at least, no doubt ever existed. The collectors stated that there is no difference whatsoever, but that if they dig up the ground, and thus get at the roots in the ground, that the latter will give more. The Deputy-Conservator's own observations are that Caoutchouc-collectors will go to the utmost extremity of the branches, at the risk of their lives, to procure Caoutchouc, and that the quantity will only vary according to the place first attacked; if this is commenced at the upper branches, the greater quantity will be obtained from there; if at the roots in the ground, as is done in the most cases, the largest quantity will be obtained from these.

303. The Deputy-Conservator has always looked on the formation of aërial roots as one of the greatest advantages in favour of the cultivation of *Ficus elastica*, since the facility with which these are thrown out enables this tree to recover itself much faster than other Caoutchouc-trees with only a single stem.

It is not intended to affirm by the above remark a belief in surplus milk, or that a vigorous tree receives through one stem less sap than through many stems; on the contrary, a tree in health will always produce as much sap as it requires, no matter if through one or many stems, or roots. But, if by tapping the actions of roots or stems are interfered with, or rendered impossible, *Ficus elastica* will, by making new roots, adjust this quicker than a Caoutchouc-tree with a single stem only. On the other hand, the great number of aërial roots enable the collectors to overtap a *Ficus elastica* more than any other Caoutchouc-tree, as the surface exposed is greater; but this can be easily controlled in the plantations when the trees are ready for tapping.

If the *Ficus elastica* is planted in the ground, or germinates in the fork of a tree, it makes but little difference to the size or number of aërial roots formed after, especially if grown, as is done in the Charduar plantation, where part of the forest is left standing between the lines of Caoutchouc-trees, by which an excessively steamy atmosphere is ensured; in such localities the aërial roots will always correspond in size and number to the size of the tree.

304. There are two varieties of *Ficus elastica*,—the "Bogi Bur" and the "Shika Bur,"—and the former of which is said to be slightly superior, but the difference is not such as to render it advisable to confine planting to this variety only.

305. Experiments of planting *Ficus elastica* on a small scale in grass land are carried on, by order of the Chief Commissioner, on the Bamuni Hill, in the neighbourhood of Tezpur, to obtain results hereafter regarding the yield of Caoutchouc from trees in this locality, as compared with the yield from trees at the foot of the Himalayas. Ten acres were thus brought under cultivation by planting at distances of 25 by 25 feet. No vacancies exist, and the plants, though small as yet, look very healthy. Nahor (*Mesua ferrea*) has been planted between the young Caoutchouc-trees. Close planting in this case is resorted to, to bring about on as early a date as possible a perfect cover on the land, and thus extirpate the grass, insure the formation of vegetable mould, the moisture of the soil, and a surface sufficiently open to atmospheric influences, which conditions are ensured in the Charduar plantation by leaving part of the forest standing.

306. The Caoutchouc plantations occupied the greater portion of Mr. Fisher's time during the year; and much credit is due to him for the interest he has taken in this work, and the attention paid by him generally to these experiments.

GOLAGHAT DIVISION.

307. The experimental Teak plantations at Makum and on the Tippum Hill are the only plantations in this division; and, as before said, nothing but simple protection was done to them. Both plantations were inspected by the Deputy-Conservator in January, 1875. The growth in the plantation at Makum is very good, and the pruning done last year caused an improvement in the growth of the trees, the sizes in the different plantations being as follow:—

Teak of 1869—

Average height per tree	29 feet.
Average girth, measured one foot above the ground ...	14 inches.

Eleven out of the fifty trees measured were forty feet each in height, and the largest tree in girth measured twenty-one inches and flowered during the year.

Teak of 1871—

Average height per tree	24 feet.
Average girth, measured one foot above the ground ...	10 inches.

Teak of 1872—

Average height per tree	13 feet.
Average girth, measured one foot above the ground ...	7 inches.

Eight trees out of the fifty measured had been attacked by the borer.

The extension of 1873-74, is a complete failure, and has therefore been struck off the register of plantations. The same is the case with Tippum Hill plantation, where the trees gradually died, apparently from the excessive moisture and cold combined, which was greater in the dense forests on the Tippum Hill than at Makum, on account of the small clearance.

THE KHASI HILLS PLANTATIONS.

TIMBER PLANTATIONS.

308. In the year 1871-72 an area of 580 acres was leased, at the rate of ~~Rs~~ 50 per annum, for the purpose of a timber plantation in the immediate neighbourhood of the station of Shillong, by order of the Government of Bengal. In the year 1873-74 an orchard of about five acres was bought for ~~Rs~~ 800, and paid for by the Forest Department. The timber plantation land is demarcated, and remains in charge of the Deputy-Commissioner in the Forest Department, and is *ex-officio* supervised by the Superintendent of the Shillong farm, whilst the trees in the orchard were removed to the farm, and the land sold for ~~Rs~~ 500.

309. On the timber plantation land there are about fifty acres covered with *Pinus Kasya*, which it is intended to preserve,—all the rest is to be planted, and sown partly with *Pinus Kasya*, and partly with indigenous and exotic leaf-bearing trees. In the timber plantation, but little planting had been done formerly, and this little was only a succession of failures, since the Deputy-Commissioner had nobody who knew anything about planting to look after the work.

310. A new beginning was made therefore during the year under notice by preparing a proper nursery of about one acre for the undermentioned seeds, received from the Superintendent of the Botanical Gardens, Calcutta, the Conservator of Forests, Bengal, and collected by this department in these hills. These seeds were sown, and succeeded better than any had done hitherto. The number of seedlings raised were the following:—

Juglans regia	11
Castanea vesca	47
Quercus serrata	413
„ lamellosa	200
Eucalyptus globulus	7,000
„ rostrata	11,000
„ marginata	25
„ calophylla	54
„ tetracornis	500
„ paniculata	100
„ sideroxylon	400
„ obliqua	300
„ melanoxylon	200
„ longifolia	30
„ bicolor	200
Casuarina quadrivalvis	200
Callitris cupressiformis	400
Brachychiton acerifolium	100
Pinus Austriaca	3,000
„ maritima	1,000
„ Strobus	200
„ excelsa	2,900
„ Gerardiana	12
Abies Smithiana	30,000
„ excelsa	4,300
Cedrus deodara	600
Wellingtonia gigantia	20
Cryptomeria japonica	14,500

The walnuts and chesnuts were all planted out, but the latter have been greatly subjected to the attacks of white-ants.

311. Of timber trees, the following areas were planted:—

Quercus serrata	½ acre.
Eucalyptus globulus	1 „
„ rostrata	¼ „
Pinus Austriaca	2¼ „
„ maritima	½ „

Quercus serrata, being indigenous in these hills, thrives very well, and its planting has been successful.

The ground where the *Eucalyptus globulus* were planted proved too stony and dry, and most of the plants, which were all very weakly, were killed by frost.

Eucalyptus rostrata, on the other hand, stood the frost very well, and proved altogether much hardier than *Eucalyptus globulus*.

The different species of pines planted out have all done very well, especially *Pinus maritima*, which appears to be best suited for the climate, and its growth, as far as one can judge after so short a time, is more vigorous than that of the other species. In the western portion of the plantation land, 750 four-year-old *Pinus Kasya* were planted, and fourteen acres sown of the same species; and in Upper Shillong, and on the land adjoining the streams from which the water-supply of Shillong is procured, 110 acres have also been sown with *Pinus Kasya*.

The total expenditure on this planting and sowing during the year has been—

	Rs.	As.	P.
Formation	303	12	3
Protection from fire	96	4	0
Orchard	307	5	7
Total	707	5	10

Cinchona Plantations.

312. These plantations were started by the Superintendent of the Botanical Gardens, Calcutta, in 1867. During the last four years they were in charge of two Khási gardeners, on Rs. 16 each a month, who weeded them and kept the fires out. They consist of a number of small patches of Cinchona-plants, the highest of which is situated at about 3,500 feet and the lowest at 2,000 feet elevation. They were inspected in September and November by the Deputy-Conservator, the result of which inspection is shown below, the different plantations being quoted under consecutive numbers, beginning with the one at the highest elevation. The species cultivated are *Cinchona succirubra*, *Cinchona officinalis*, and *Cinchona micrantha*, of each of which plants were found in flower and seed. On the whole, the plants looked healthy, and most seemed to have reached their normal height, whilst the large number of deaths must be mainly attributed, it appears, to the inexperience of the two natives left for so long without supervision.

Plantation No. 1.

Species.—{ Cinchona succirubra.
Cinchona micrantha (two plants only).
Area.—625 square feet.
Soil.—Sandy loam, with decomposed quartz.
Distances at which planted, 5 feet by 5 feet.

Total number of planting spots	...	...	25
Number of plants alive	...	...	22
„ failures	...	...	3
Percentage of plants alive	...	88	... 100
„ failures	...	12	

Average height of plants, 4 feet 4 inches.
Average girth, measured one foot above the ground, 4½ inches.

This plantation is near the top of a hill, surrounded by grass land, and the plants have a dwarfed appearance. The bark seemed to have been eaten much by insects.

Plantation No. 2.

Species.—{ Cinchona officinalis.
Cinchona micrantha (twenty plants, of which only one was alive).
Area.—8,250 square feet.
Soil.—Loam, vegetable mould, and decomposed rock.
Distances at which planted, 6½ feet by 7 feet.

Total number of planting spots	...	...	277
Number of plants alive	...	...	228
„ failures	...	...	49
Percentage of plants alive	...	... 82	... 100
„ failures	...	... 18	

Average height of plants, 10½ feet.
Average girth, one foot above the ground, 6 inches.

This plantation is situated on a steep slope, surrounded by forest, and the ground covered with moss. The plants had nearly all several stems, were flowering and seeding, and looked healthy. In three plants the stem had been eaten nearly through by a borer, which caused the plants to die above the place attacked, but did not affect the lower part. Several plants were noticed with their bark diseased, but this had in all cases grown over. At the base of nearly every tree there were numerous young shoots, an inch or two in length, indicating that they had reached their normal height.

Plantation No. 3.

Species.—Cinchona succirubra.
Area.—690 square feet.
Soil.—Loam and vegetable mould.
Distances at which planted, 6½ feet by 6½ feet.

Total number of planting spots	...	...	10
Number of plants alive	...	...	10
„ failures	...	...	*Nil.*
Percentage of plants alive	...	... 100	... 100
„ failures	...	... *Nil.*	

Average height of plants, 10 feet.
Average girth, one foot above the ground, 8 inches.

These plants were planted on a steep slope, surrounded by forest, and on this account had clean stems, few branches and leaves, and no flowers or seed. One of the plants was

nearly eaten through by a borer, and had in consequence made numerous young shoots from the stem below the damaged spot. The highest plant measured 12¼ feet, by 9 inches in girth one foot above the ground.

Plantation No. 4.

Species.—Cinchona officinalis.
Area.—2,000 square feet.
Soil.—Loam and vegetable mould.
Distances at which planted, 6 feet by 9 feet.

Total number of planting spots	...	...	...	50
Number of plants alive	...	...	...	44
„ failures ...	...	...	...	6
Percentage of plants alive ...	...	...	88	... 100
„ failures ...	...	...	12	

Average height of plants, 1 foot.

This plantation was planted by the two mallis about a year ago, and the plants looked healthy; some of them had been bitten off by deer or other animals.

Plantation No. 5.

Species.—Cinchona succirubra.
Area.—15,000 square feet.
Soil.—Loam, very rocky and steep.
Distances at which planted, 4 feet by 5 feet.

Total number of planting spots	...	...	...	407
Number of plants alive ...	...	...	...	209
„ failures	...	...	...	198
Percentage of plants alive	...	...	51	... 100
„ failures	...	...	49	

Average height of plants, 13 feet.
Average girth, one foot above the ground, 12 inches.

This is the upper half of the main plantation of *Cinchona succirubra*; many of the trees were flowering and seeding, and had branched out very much. The highest tree measured was sixteen feet, with a girth of fifteen inches one foot above ground. Five trees were noticed with their bark diseased, but most of it had grown over, and did not seem to affect them much. A number of the dead trees had been left standing here, and showed no apparent cause of death. Their leaves seem first to turn yellow, and then to drop off, except two or four at the extremity of each branch, and afterwards die from above; the lower part of the plant remaining alive longest, and sometimes sending up young shoots again.

Plantation No. 6.

Species.—Cinchona succirubra.
Area.—27,000 square feet.
Soil.—Loam, very rocky.
Distances at which planted, 5 feet by 6 feet.

Total number of planting spots	...	...	...	560
Number of plants alive...	...	...	...	354
„ failures ...	...	...	...	206
Percentage of plants alive	...	...	63	100
„ failures	...	...	37	

Average height of plants, 7½ feet.
Average girth, one foot above ground, 6 inches.

This plantation is situated on a gentle slope just below No. 5. Of the trees which were alive, twelve were noticed with their bark slightly diseased, which, however, had in most cases well grown over. All the dead trees had been removed, so that it was not possible to say if any of them had died from the disease in the bark to which Cinchonas are subjected in this country. The living plants looked generally very healthy, and the highest tree measured was 11 feet, by 13 inches in girth one foot above ground, and here also trees were in flower and seed.

Plantation No. 7.

Species.—Cinchona micrantha.
Area.—720 square feet.
Soil.—Loam and decomposed quartz.
Distances at which planted, 5 feet by 6 feet.

Total number of planting spots	...	...	...	159
Number of plants alive	...	...	.	59
„ failures	...	...	...	100
Percentage of plants alive	...	...	37	100
„ failures	...	...	63	

Average height of plants, 7 feet.
Average girth, one foot above ground, 4½ inches.

Here the plants seemed also to have reached their normal height; they were more bushy than *Cinchona succirubra*, and also in flower and seed, and were making numerous young shoots from the lower part of the stem, whilst the growth at the upper extremities looked retarded This is the main plantation of *Cinchona micrantha*.

Plantation No. 8.

Species.—Cinchona succirubra.
Area.—1,600 square feet.
Soil.—Loam and level ground.
Distances at which planted, 4 feet by 5 feet.

Total number of planting spots			56
Number of plants alive			18
„ failures			38
Percentage of the plants alive	32	}	100
„ failures	68	}	

Average height of plants, 6 feet.
Average girth, one foot above ground, 4½ inches.

These plants were evidently of two different plantings, some being much higher than others.

Plantation No. 9.

Species.—Cinchona succirubra.
Area.—476 square feet.
Soil.—Loam, and a gentle slope.
Distances at which planted, 4½ feet by 5 feet.

Total number of planting spots			21
Number of plants alive			14
„ failures			7
Percentage of plants alive	66	}	100
„ failures	34	}	

Average height of plants, 4½ feet.
Average girth, one foot above ground, 4 inches.

Plantation No. 10.

Species.—Cinchona succirubra.
Area.—5,850 square feet.
Soil.—Loam, gentle slope.
Distances at which planted, 5 feet by 6 feet.

Total number of planting spots			135
Number of plants alive			108
„ failures			27
Percentage of plants alive	80	}	100
„ failures	20	}	

Average height of plants, 8 feet.
Average girth, one foot above ground, 9 inches.

The plants here looked generally healthy, and appear to have reached their normal height, numerous young shoots growing out of the lowest part of the stem. The highest plant measured was 11 feet 8 inches, with a girth of 12 inches one foot above the ground.

Plantation No. 11.

Species.— { Cinchona succirubra. / Cinchona micrantha (two plants only).
Area.—3,750 square feet.
Soil.—Loam and decomposed quartz.
Distances at which planted, 6 feet by 6 feet.

Total number of planting spots				130
Number of plants alive				112
„ failures				18
Percentage of plants alive	86	}	...	100
„ failures	14	}		

Average height of plants, 8 feet.
Average girth, one foot above the ground, 9 inches.

Here, as in plantation No. 5, the plants seemed to have reached their normal height, the growth at the apex being retarded, and numerous young shoots growing out of the stem near the base of the tree. The disease in the bark was noticed on five trees, which had, however, grown over, and does not appear to be serious. The dead plants had here also been removed, so that it cannot be ascertained if any of them died from the disease in the bark; but the general appearance is against this conclusion.

Plantation No. 12.

This consists of five terraces, each about fifteen feet in width and 110 feet in length, on which evidently the nursery-beds were kept up formerly, since there are about 3,000 plants more or less alive, which had been planted at eight inches apart, and varied from the thickness of a finger to six inches in girth, and are now nearly all of them too old or too large for transplanting.

Plantation No. 13 (*Jirang*).

Species.—Cinchona succirubra
Area.—5,350 square feet.
Soil.—Sandy loam.
Distances at which planted, 7 feet by 7 feet.

Total height of trees measured	1,340	feet.
Average height per tree	12·8	„
Total girth of trees, measured one foot above the ground ...	948	inches.
Average girth per tree	9·1	„

The highest plant measured was nineteen feet, and no diseased trees were noticed. Only one of the trees was in flower, which showed that they had not reached their normal height as yet for this altitude. Samples of bark from the different plantations, 3lb 6½oz. in weight, were sent to the Government Quinologist in Darjeeling for analysis, which were reported on by him as follows :—

"*C. Succirubra.*—Four samples of the bark from this species were received. They were labelled respectively—Plantation No. 1, Plantation No. 5, Plantation No. 12, Jirang Plantation. The following results were obtained upon analysis :—

	No. 1.	No. 5.	No. 12.	Jirang.
Total alkaloid	4·90	4·43	4·55	4·66
Alkaloid soluble in ether	2·20	2·05	2·10	2·20
Cinchonidine	1·12	1·00	1·04	1·04
Cinchonine	1·58	1·38	1·41	1·42
Cryst. Quinine sulphate...	1·30	1·05	1·40	1·50

"*C. Officinalis.*—Two samples were received, both from No. 2. They yielded respectively 0·93 and 1·23 per cent. of total alkaloid. The bark is therefore of but little value.

"*C. Micrantha.*—Two very small samples were received. The alkaloid present consisted chiefly of cinchonine. This is characteristic of the grey barks, and as cinchonine is the least valuable of the cinchona alkaloids, the extended cultivation of Micrantha is not likely to prove so useful as that of other species.

"I presume that the samples of Succirubra bark were taken from the main stem only, and, if so; it would appear that they are not so rich in total alkaloid as the Succirubra bark produced in Sikkim, our stem yielding from six to seven per cent."

The only expenditure on these plantations during the year has been Rs 320, which is ten months' pay of the two gardeners or watchers kept for their protection.

SECTION IV.—OPEN FORESTS.

313. In the Eastern Duars of the Goálpára district, 422 square miles were declared in July, 1872, Government open forests under Act VII. of 1865. About one hundred square miles of these are Sâl forest, and constitute the most valuable forest property in the Province, equal, if not exceeding, in value all the other forests combined. The mature timber has all been worked out of these forests, since they are, comparatively speaking, very accessible to the great timber markets in Bengal. No large income can therefore be expected from these forests for some years to come, but this only shows how very urgent the strict conservancy of these forests is. It is evident that this cannot be done as long as they remain open forests under the rules now in force. Proposals were accordingly submitted to have the open forests in the Bijnee, Chirang, Ripu, and Goma Duars declared Government forest reserves, which proposals are now under the consideration of the Chief Commissioner.

As regards the Sidlee Duars, in which the forests are as valuable, if not more so, than in the other Duars, this could not be done until a forest officer can survey and examine the different tracts in detail, since a number of villages are included within the boundaries, as at present gazetted, which will all have to be surveyed and demarcated previous to submitting final proposals to the Chief Commissioner. It is intended to commence this detailed examination of the Sidlee Duar forests in the season of 1875-76, with a view of having them also declared reserves. The great danger to which the forests in the Eastern Duars are exposed is the spread of the jhoom cultivation into them, and this has zealously been watched over during the year, as regards lands on which Sâl, Sissu, Khair, and Chelowni are growing; but it must be evident how very much mischief can still be done to these forests as long as the protection is limited to these trees only, and not extended to everything, both soil and forest growth, on defined areas, as is the case with forest reserves. During the year, two cases of forest trespass were tried, in which five persons were concerned, all of whom were convicted. Other attempts at cultivation in Sâl forests were prevented by the prompt interference of the protective establishment without the necessity for prosecution.

SECTION V.—YIELD OF THE FORESTS.

Goalpara Division.

314. All mature trees in the Sâl forests having been felled and removed before the Forest Department took charge of the forests in the Eastern Duars, no timber works will be carried on in this division for a number of years to come. There is no demand at present for other kinds of timber than Sâl from the forests in this division; and all forest produce, except Sâl, Sissu, Khair, and Chelowni timber, is free in the Government open forests.

Gauhati Division.

315. In this division we have the only mature Sâl trees left; and even here only in small numbers; so that the fellings are at present limited to the local requirements until valuation surveys are made, to ascertain accurately the number of trees which can be removed annually. It is necessary to restrict fellings in these forests, since Sâl timber above ten feet in length and five feet in girth is not procurable in the markets in this part of the country, and is required by the Public Works Department alone, at the rate of about 200 logs annually for the present. During the year under notice, 400 Sâl-trees were felled in the Pantan reserve, and cut into 417 logs, of which 338 were brought into the Kukurmara sale-depôt, twenty-five logs to the Kulsi Plantation, and forty-four logs to a temporary depôt at Bar Bokra,—ten logs remaining in the forest at the end of the year. The 338 logs brought into the Kukurmara depôt measured 11,147 cubic feet 3 inches, of which 200 logs, measuring 6,765 cubic feet 11 inches, were sold to the Public Works Department for Rs. 5,603, at the rate of annas 13-3 per cubic foot.

316. The above twenty-five logs, measuring 490 cubic feet 9 inches, which were brought to the Kulsi plantation, together with twenty-six logs, measuring 490 cubic feet 9 inches, which were in store from last year, and twenty-two dead Sâl posts, also in store from previous year, were used in building the bungalow and out-offices for the divisional officer at that place.

317. The expenditure on working out this timber and bringing it into depôt has been the following:—

	Rs.	As.	P.
Felling and floating	641	7	0
Dragging (estimated)	881	7	0
Total ...	1,522	14	0

or annas 2-1 per cubic foot.

The net profit, therefore, per cubic foot on the timber sold at Kukurmara depôt is annas 11-2, which will increase with the greater demand for Sâl timber every year.

318. Three boats or dug-outs were cut in this division for floating timber by this department, at the cost of Rs. 32. One Sâl-tree and one Amari-tree were sold standing in

the forest, at Rs 10 and Rs 3, respectively. The undermentioned dead Sâl posts were removed by purchasers from the reserves :—

One at Rs 2	... Rs	2
Twenty-seven at Re. 1	... „	27
Forty at As. 8	... „	20
Total	... „	49

and 278 small pieces of Sâl for ploughs, at 2 annas each, realized Rs 34-12.

The receipts from minor forest produce was, and for many years to come will be, trifling from the Government reserves, since there exists a great abundance of forest produce such as is required by the inhabitants, and is procured free from the forests outside the reserve.

319. Rs 1,600 were realized in this division in 1873-74 from the Department of Public Works by the sale of 200 Sâl trees in the forest, since it was thought that Sâl timber could be brought out for less than this department charge. The difficulties, however, proved such, that the Executive-Engineer changed his mind, and applied to this Department to work the timber out, and to deduct the Rs 1,600 from the sale-money, which was accordingly done in 1874-75.

Tezpur Division.

320. The working out of dead Sâl from the Balipara Sâl forest was continued. Besides this, forty-eight trees were felled for the purpose of counting the concentric rings of Sâl grown in the Balipara reserve. These, together with the former, gave 713 logs, measuring 3,806 cubic feet 4 inches, which were worked out during the year, and brought to depôt. Of these, 676 logs, measuring 3,701 cubic feet 7 inches, were sold at Tezpur by public auction and private sale for Rs 3,243-14-6, or an average price of annas 14 per cubic foot. The expenditure on the Sâl timber was as follows :—

	Rs	As.	P.
Felling and floating	1,049	11	0
Dragging (estimated)	702	6	9
Auctioneer's commission	112	4	6
Total ...	1,864	6	3

or annas 7-10 per cubic foot

The net profit, therefore, per cubic foot on Sâl in the Tezpur division has been annas 6-2, which would have been larger, if the cost of floating, like all other work, had not become so very high in consequence of the scarcity of labour and the high wages paid by tea-planters in the neighbourhood of the reserves, which has been raised absurdly high during the year. Besides the Sâl timber, ten trees of Ajhar and sixty-four trees of Uriam were felled on indent, giving seventy-four logs, and measuring 635 cubic feet 10 inches, which were worked out at the rate of annas 3-4 per cubic foot, and sold at the rate of 12 annas per cubic foot. One boat, or dug-out, was cut for the floating of timber by the department at the cost of Rs 36.

321. No revenue was realized in this division from minor produce, nor are there likely to be any receipts from this source for many years to come, since all wants of the inhabitants are obtained by them from the forests outside the reserves free, and forests and grazing-ground exist in great abundance in the Darrang district.

Golaghat Division.

322. In the Nambor reserve ninety-three trees of Nahor and Ajhar were felled and logged during the year. In addition to the 122 logs of Ajhar and Nahor timber, measuring 3,434 cubic feet, in store at the Golághát sale-depôt at the end of 1873-74, 483 logs, measuring 17,420 cubic feet of the same kinds, were brought to depôt on indent for the Department of Public Works, Central Assam division, of which 561 logs, measuring

13,608 cubic feet, were made over during the year, and forty-four logs, measuring 1,229 cubic feet, remain in depôt. The expenditure on this timber has been as follows :—

	Rs.	As.	P.
In 1873-74—			
Felling and floating	998	11	0
Dragging (estimated)	680	12	0
In 1874-75—			
Felling and floating	399	15	6
Dragging (estimated)	849	6	0
Total ...	2,920	12	6

or annas 3-1 per cubic foot; whilst the timber is sold at annas 12, or a profit of annas 8-11 per cubic foot.

323. The above estimates of the cost of dragging timber were made by taking the actual feed and keep of the elephants and buffaloes for the days they were engaged in timber work, and ten per cent. of the value of elephants, taking each animal at the value of Rs. 2,000, and ten per cent. of the actual purchase-money of the buffaloes.

324. There having been no forest officer in the year under notice for the Cachar division, no other record of the yield of the Cachar forest was kept, except the one by the toll-keeper of Sealtek ghât, who reported that 15,192 logs and 414 small pieces of timber passed the toll-station during the year.

Civil Officers.

325. The only details of the yield of the forests in charge of Deputy-Commissioners received in the quarterly returns are the following :—

	Logs.	Pieces.
Kámrúp District	472	44
Darrang „	384	.....
Nowgong „	1,535	175
Lakhimpur „	80	.....
Cachar „	15,192	414
Nága Hills Agency	16	.....

SECTION VI.—FINANCIAL.

326. The receipts and expenditure of the year in the different divisions, and by civil officers, are exhibited in form No. 28. The totals are the figures received from the Deputy-Accountant-General, Assam. But a re-distribution under the different heads of service has been necessary, on account of errors which originated in the direct submission of the divisional accounts, and those of the Deputy-Commissioners, to the Deputy-Accountant-General.

327. The actual receipts of the year, as compared with those of 1873-74, are the following :—

Budget Heads.	1873-74.	1874-75.	Increase.	Decrease.
	Rs.	Rs.	Rs.	Rs.
I.—Revenue from wood	8,332	46,096	37,764	.....
II.—Revenue from minor produce	52,244	2,451	.....	49,793
III.—Duty on timber	.....	15,000	15,000	.....
IV.—Miscellaneous	2,150	1,202	.....	948
Total ...	62,726	64,749	52,764	50,741

The large increase in revenue from wood is to be attributed to nearly all revenue collected by Deputy-Commissioners in former years on this account having been shown as revenue from minor produce,—no detailed account of the forest produce on which it is realized being submitted by Deputy-Commissioners. For the same reason, the decrease on account of minor produce appears so large. The receipts from duty on timber are the amounts realized from the lease of the Sealtek ghât, where the duty on timber exported from Cachar is levied. The decrease shown under "miscellaneous receipts" is in reality no decrease at all, but an increase of Rs. 1,202, since the total amount shown under actuals of 1873-74 as miscellaneous revenue consisted of a refund of Rs. 2,150.

328. It appears to the Deputy-Conservator advisable that refunds, both under receipts and expenditure, should be kept under a separate main head, distinct from the other items, which is the practice in the Financial Department. The receipts by forest officers are

almost entirely from timber brought to depôt, whilst those by the civil officers are chiefly from wood removed from the forests by purchasers, license-holders, and permit-holders.

329. The increase in the expenditure has been Rs 8,900, as exhibited below:—

Budget Heads.	1873-74.	1874-75.	Increase.	Decrease.
A.—Conservancy and Works.	Rs.	Rs.	Rs.	Rs.
I.—Cost of timber operations ...	2,570	2,373	.....	197
II.—Cost of collecting minor produce ...	2	1,774	1,772	.....
III.—Cost of forest organization	84	93	9	.....
IV.—Cost of treatment and creation of forests ...	5,512	12,768	7,256	.....
V.—Rent of leased forests	883	50	.....	833
VI.—Cost of collecting duty on forest produce ...	.....	.....	.....	.....
VII.—Works of utility for the development of forests	518	4,107	3,589	.....
VIII.—Cost of departmental cattle	8,327	7,123	.....	1,204
IX.—Cost of plant and tools	880	1,809	929	.....
X.—Miscellaneous charges	125	561	436	.....
XI.—Refunds	.....	480	480	.....
B.—Establishment.				
I.—Salaries	24,903	22,332	.....	2,571
II.—Travelling allowance	5,934	5,390	.....	544
III.—Contingencies	884	662	.....	222
Total ...	50,622	59,522	14,471	5,571

The increase on account of collection of minor produce is solely for the purchase of rubber by the Deputy-Commissioner of the Gáro Hills.

The increase on account of treatment and creation of forests is chiefly to be attributed to the establishments employed under the Deputy-Commissioners having been entered under "A. IV., 1 c.," instead of under "B.—Establishment," which is in accordance with the orders of Government. Next to this, the largest increase has been on account of the protection of the Sâl forests in Kámrúp and Darrang districts against fire, and the Charduar Caoutchouc plantation work.

The increase on account of works of general utility is chiefly attributable to buildings which had to be constructed, both for officers and subordinates, to avoid a great deal of unnecessary exposure to which the establishments have been subjected, and which has caused, and does even now cause, much suffering, and interferes greatly with the efficiency of the work.

The increased expenditure for tools has been the natural consequence of increased work, and is about equally distributed amongst the three working divisions,—Gauháti, Tezpur, and Golághát.

The increase under "miscellaneous charges" is mainly the amount of irrecoverable advances written-off during the year, which were made in 1870-71, when experimental timber works were carried on in Upper Assam.

Under "refunds" are shown Rs 331-10, illegally levied by the Deputy-Commissioner of Kámrúp, and Rs 149-11-11 by a forest watcher in the Kuch Behar forest division, Bengal. These refunds have been shown by the Deputy-Accountant-General under an additional main head, in accordance with the practice in his department.

The decrease under "cost of department cattle" is owing to the loss of four elephants during the year, and under "B.—Establishment" to the absence on leave to Europe of the officer in charge of the Goálpára division.

330. The cost of direction and the receipts and expenditure in the different divisions and by the civil officers is the following:—

Name of Division.	Receipts.	Expenditure.	Surplus.	Deficit.
	Rs.	Rs.	Rs.	Rs.
Direction	.....	10,198	.....	10,198
Gauháti	4,120	18,489	.....	14,369
Tezpur	3,051	13,697	.....	10,646
Golághát	9,644	7,732	1,912	.....
Goálpára	159	937	.....	778
Civil Officers	47,775	8,469	39,306	.....
Total ...	64,749	59,522	41,218	35,991

The net revenue of the year is therefore Rs 5,227, which was realized in the Golághát division and by the civil officers. In the former, on account of exceptionally large quantities of timber worked out for the Department of Public Works, and by the latter on account of no works of improvement and conservancy having been undertaken as yet.

331. Taking the receipts and expenditure for the whole Province, and looking at the figures only, it would appear as if the Forest Department had taken charge of the least productive portion of the forests in Assam. This, however, is not the case, and is explained by the fact that the most valuable forests were naturally resorted to first by the wood-cutters, and the professional staff of this department is therefore chiefly engaged in repairing the damages of former years, preventing further depredations, and protecting generally valuable forests, out of which the mature timber had been worked, and which must therefore, as a matter of course, show a deficit.

332. On the other hand, instead of legitimate forest revenue, like that from the Soom forests, being credited against the expenditure incurred on the improvement of forests nearly ruined before this department took charge of them, the Soom forests are called Soom-tree cultivation, which they decidedly are not, and receipts from them credited as land revenue. Thus, true enough, exhibiting the expenditure of the Forest Department, but leaving the far more important question of what the Province does or may produce from its forests out of the accounts, and showing therefore the financial position of the department, but not the financial position of forest management in the Province generally, as it should do.

333. The unfavourable result of the working of this department is only temporary, since there is no doubt whatsoever that as soon as the Sâl forests of the Goálpára and Kámrúp districts have recovered, the revenue from these forests will be large, to which, although slowly, will be added the income from the inferior woods growing in the mixed plain and lower hill forests, which will not remain valueless, or next to it, as they are at present, as is abundantly evident from the extensive timber trade in these woods existing in Cachar and Sylhet. The question of realizing revenue from rubber is under the consideration of the Chief Commissioner. Under "advances recoverable," the amount of Rs 2,667 has been decreased to Rs 752. Since the statement in Form 42 does not show the amount expended on account of 100 cubic feet of timber, as it professes to do, the cost of timber per cubic foot in the different depôts and divisions has been quoted in the preceding section.

SECTION VII.—GENERAL.

Office Business and Accounts.

334. The rules and forms of accounts of the draft Forest Office and Account Code were introduced during the year in the forest offices in Assam, in accordance with subsequent orders of Government. During the first seven months of the year the forest accounts were audited by the Deputy-Conservator, after which this duty was transferred to the Deputy-Accountant-General, the divisional forest officers sending their cash accounts direct to the latter, and their timber and stock account to the Deputy-Conservator. Since under this system the Deputy-Conservator remained almost in total ignorance of the expenditure, it was represented to the Chief Commissioner that the divisional accounts should be checked in all their detail by the Deputy-Conservator before submission to the Deputy-Accountant-General, and this has since the end of the year been approved, so that the forest accounts are now managed in accordance with paragraph 2 of Government Resolution 22-803-817, dated the 28th July, 1874,—the Deputy-Conservator checking and classifying them before they go to the Deputy-Accountant-General for audit and adjustment.

Deputy-Conservator's Tour.

335. This began, with the inspection of the Nongklao Cinchona plantation, on the 13th of September. After the 5th of November, the inspection of the Gauháti, Tezpur, and Golághát divisions was carried out in succession, when the experimental teak plantation at Makum was also visited, and the trees measured. On returning from Upper Assam, the Charduar Caoutchouc plantation and the Balipara Sâl forest were inspected a second time. After this, the arrangements for keeping the fire out of the Kámrúp reserves were inspected, and the Kulsi timber and Caoutchouc plantations, as well as the Jirang Cinchona plantation, were examined, from where the Deputy-Conservator proceeded to Sylhet and Cachar, and carried out the inspection of the forest there. This was completed on the 5th April, when the Kulsi and Charduar Caoutchouc plantations were again inspected, which ended the tour on the 30th April.

Elephants.

336. This department has been most unfortunate with these animals during the year, three having died in succession quite suddenly from the pulmonary disease described by Gilchrist in his *Diseases of the Elephant*, pages 12 and 13, which occurred in an epidemic form in the Golághát division. The animal suffers intense pain for a time, varying from half-an-hour to four hours, coughs severely, and seems to die of suffocation. The Sub-Assistant-Conservator in charge of the Golághát division reported that the loss amongst private elephants had been equally great,—twenty having died near Golághát. One elephant died in the Gauháti division from old age.

CONTEMPLATED WORK in 1874-75.—Goalpara Division.

337. The detailed examination of the forests in the Eastern Duars is to be commenced in the Sidli Duar, where a number of villages exist in the neighbourhood of the forest, which, together with the land excluded from the forest for cultivation, must be surveyed and demarcated. Protection from fire cannot be attempted this year; but the cattle-grazing it is proposed to exclude, if the forests are declared reserves. For the use of the divisional officer and the protective establishments, four small rest-houses and four huts are to be built.

Gauhati Division.

338. The felling and working out of 400 Sâl trees is intended, if the elephants available permit. The detailed examination and survey of the Kámrúp reserves is to be commenced in the Barduar reserve, and all boundaries and boundary-marks to be gone over and repaired. The reserves are to be protected against fire in the same manner as was done in 1874-75, and the creepers on Sâl trees to be cut simultaneously with the survey in the Barduar reserve. No extension is to be made of the teak plantation, as there are no funds available for this work. Ten acres of Sissu and twenty acres of Rubber are to be planted. The roads in the Barduar and plantation reserves are to be cleared and repaired. The bungalow for the divisional officer is to be completed, and the huts for the protective and work establishment are to be renewed.

Tezpur Division.

339. From the Balipara Sâl forest, 300 dead Sâl logs are to be worked out, the artificial boundaries of the reserves are to be gone over, and all the boundary-mounds to be repaired. The fire is to be kept out of all the Sâl forests in this division, and the creepers are to be cut in these forests at the same time, and the experiment of reboisement, commenced in 1874-75, is to be extended. The Charduar Rubber plantation is to be extended, if funds for this purpose are available. The roads and bridges in the Charduar Rubber plantation are to be repaired. A forest house is to be built at the Bhairabi ghât (head-quarters of divisional officer), and thirty huts for the protective and work establishments.

Golaghat Division.

340. Timber works are to be limited to small pieces for local requirements, the Public Works Department having been supplied with all their indent. All the boundaries of the reserves are to be gone over, and boundary-mounds to be repaired. Experiments on a very small scale are to be made in the Nambor reserve of improving the forest by sowing Nahor seed. This experiment is not to extend over more than one acre, since funds applied for in the budget estimate for this purpose were disallowed. The road to the Murphelani control-station and bridges on this road are to be repaired. The huts at all the control-stations are to be repaired, as well as those in the Golághát depôt.

Cachar Division.

341. The forest produce toll-station is to be inspected, and all the forest boundaries, and especially those of the tea estates within the forest limits, as proposed, are to be gone over. This will be as much as can be done during this year.

Civil Officers.

342. The pine forests in Shillong are again to be protected against fire and plantation works are to be limited to what is absolutely necessary, to avoid losing the seedlings in the nursery by the latter growing too large for transplanting. The plantation foresters' and watchers' huts are to be repaired.

Services of Officers.

343. The following officers were in charge of the different forest divisions :—

Mr. A. P. Aylmer, in charge of the Gauháti division.
„ W. R. Fisher, in charge of the Tezpur division.
„ H. B. Condon, in charge of the Golághát division.

The Deputy-Conservator has much pleasure in stating that everyone has done his utmost to further the works he was in charge of, and to have them executed in an efficient manner, and this often under very trying circumstances.

The floods which occurred in the Gauháti division, and the great danger from fire to the Sâl forests, were a constant source of great anxiety to Mr. Aylmer; and it is feared the unavoidable exposure, especially during the floods, added to the disease to which he fell a victim on his way home, which deprived Assam of a most experienced officer. This melancholy fact is here recorded as an acknowledgment of Mr. Aylmer's services since he came to Assam.

Mr. W. R. Fisher has had a full share of the executive work in the Charduar Caoutchouc plantation experiments, and the success, as far as these works have progressed, is greatly due to Mr. Fisher's earnestness and energy in superintending them.

Mr. Condon has established the control-stations in the Nambor reserve, and thus rendered further illegal felling in these forests impossible. He has gone over the Mikir Hill reserve, and explained to the Mikir villagers in a judicious manner that their destructive jhooming is inconsistent with forest conservancy, and cannot be permitted in forest reserves, and carried out timber operations successfully in the Nambor reserve on a larger scale than had been done before.

Of the subordinate establishment, the services of Forest Ranger Jay Narayan Das have been specially brought to the notice of the Deputy-Conservator by Mr. Fisher as highly satisfactory.

Form No. 26.

FOREST DEPARTMENT, ASSAM.

Dr. *Annual Account Current for the year* 1874-75. Cr.

	Rs	Rs		Rs	Rs
To Cash Balance on the 1st April, 1874.....	.....	489 0 5	By Expenditure under A.	31,187 9 6	
„ Revenue received in cash.....	51,287 3 3		„ Expenditure under B.	28,385 0 5	
„ „ adjusted by Book transfer	13,462 0 0		„ Objectionable items not included under Expenditure	.....	
„ Contribution to Funds	456 11 0		„ Contributions to funds paid to Public Treasuries	.....	
„ Remittances from Treasuries	61,197 4 4		„ Remittances to Public Treasuries	53,205 13 9	
„ Advances recoverable	25,136 10 4		„ Revenue adjusted by Book transfer	13,462 0 0	
„ Deposits „	.....		„ Advances recoverable	23,221 12 5	
„ Refunds of excess payments	1 15 0		„ Repayment of Deposits	.....	
		1,51,541 11 11	„ Refunds of Revenue	149 5 6	
					1,49,561 9 7
			„ Cash Balance on the 31st March, 1875	.....	2,469 2 9
Total.....	.....	1,52,030 12 4	Total.....	.....	1,52,030 12 4

Form No. 28.

FOREST DEPARTMENT, ASSAM.

Annual Summary of Revenue and Expenditure of the different Divisions during 1874-75.

REVENUE.

Classification.	Direction.	Gauháti.	Goálpára.	Tezpur.	Golághát.	Civil Officers.	Total.
	Rs As. P.	Rs As. P.	Rs As. P.	Rs As. P.	Rs As. P.	Rs As. P.	Rs As. P.
I.—Revenue from Wood.							
1. Brought to depôt by departmental agency— (a.)—Timber ..... (b.)—Firewood and charcoal. (c.)—Sandal-wood.	.....	4,003 0 0	.....	3,051 1 6	9,342 8 0	.....	16,396 9 6
2. Wood removed from the forests by purchasers, license-holders, and permit-holders.— (a.)—Timber	.....	94 12 0	10 0 0	.....	280 0 0	29,363 0 8	29,687 12 8
(b.)—Firewood and charcoal	.....	.....	.....	.....	.....	11 12 0	11 12 0
3. From confiscated drift and waif wood.							
II.—Revenue from Minor Produce.							
1. Grazing dues and sale of grass.							
2. Other minor produce	.....	.....	.....	.....	61 0 0	2,390 1 10	2,451 1 10
III.—Duty on produce of foreign or private forests imported into British Territory.							
1. On wood	.....	.....	.....	.....	.....	15,000 0 0	15,000 0 0
2. On other forest produce.							
IV.—Miscellaneous.							
1. From fines and forfeitures	.....	.....	.....	.....	.....	20 4 0	20 4 0
2. From refunds to the department.							
3. From other sources	.....	22 4 0	149 4 0	0 6 0	10 0 0	990 13 3	1,172 11 3
Total Receipts.....	.....	4,120 0 0	159 4 0	3,051 7 6	9,643 8 0	47,774 15 9	64,749 3 3

Form No. 28.

EXPENDITURE.

Classification.	Direction.	Gauháti.	Goálpára.	Tezpur.	Golághát.	Civil Officers	Total.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
A.—CONSERVANCY AND WORKS.							
I.—Cost of Timber Operations.							
1. On wood brought to depôt by departmental agency—							
(a.)—Timber	.....	641 7 0	.....	1,331 15 6	399 15 6	....	2,373 6 0
(b.)—Firewood and charcoal.							
(c.)—Sandal-wood.							
2. On wood removed from the forests by purchasers, license-holders, and permit-holders—							
(a.)—Timber.							
(b.)—Firewood and charcoal.							
3. On confiscated drift and waif wood							
II.—Cost of Collecting Minor Produce.							
1. Grazing and sale of grass.							
2. Other forest produce	.....	.....	.....	.....	.....	1,774 4 0	1,774 4 0
III.—Cost of Forest Organization.							
1. Demarcation lines and boundary pillars or marks	.....	4 6 0	.....	43 11 0	.....	.....	48 1 0
2. Working plans.							
3. Surveys	.....	15 0 0	.....	.....	.....	30 0 0	45 0 0
IV.—Cost of the Treatment and Creation of Forests.							
1. Natural Forest—							
(a.)—Protection from fire	.....	1,078 4 0	.....	37 14 0	10 13 0	76 5 0	1,203 4 0
(b.)—Fencing and enclosing.							
(c.)—Improvement and conservation	.....	.....	48 12 0	44 8 0	67 3 0	5,086 9 1	5,247 0 1
(d.)—"Reboisement" or restoration of denuded areas	.....	.....	.....	71 5 0	.....	25 0 0	96 5 0
2.—Artificial forests—							
(a.)—Formation	.....	1,991 6 3	14 12 0	2,268 12 6	61 0 0	1,027 5 10	5,383 4 7
(b.)—Protection from fire	.....	35 12 0	.....	24 12 0	.....	.....	60 8 0
(c.)—Improvement and conservation	.....	42 3 0	.....	559 8 3	.....	.....	601 11 3
(d.)—Fencing and enclosing	.....	.....	.....	175 15 6	.....	.....	175 15 6
V.—Rent of Leased Forests	.....	.....	.....	.....	.....	50 0 0	50 0 0
VI.—Cost of Collecting Duty on Produce of Foreign or Private Forests Imported into British Territory.							
VII.—Works of Utility for the Development of Forests.							
1. Roads and bridges	.....	127 8 0	.....	350 12 0	68 8 0	15 10 8	562 6 8
2. Buildings and offices	.....	1,215 9 10	5 0 0	1,444 9 3	609 8 6	.....	3,274 11 7
3. Compensation for land taken up for forest purposes, or for extinction of forest rights.							
4. Other works	.....	105 5 6	.....	78 4 3	85 12 9	.....	269 6 6
VIII.—Cost of Departmental Cattle.							
1. Purchase of stock	.....	3,900 0 0	.....	123 0 0	.....	.....	4,023 0 0
2. Hire of stock.							
3. Feed and keep of cattle	.....	1,476 11 4	.....	692 7 1	912 13 7	18 12 0	3,009 12 0
IX.—Cost of Departmental Plant and Tools.							
1. For timber and wood operations	.....	254 5 6	.....	388 15 0	385 11 3	.....	1,028 15 9
2. For other purposes	.....	291 15 6	32 0 0	323 15 6	124 13 9	5 0 0	777 12 9
X.—Miscellaneous Charges.							
1. Refunds.							
2. Law charges	.....	.....	.....	.....	2 13 0	.....	2 13 0
3. Other charges	326 15 8	59 2 0	8 1 0	59 7 9	77 2 6	28 4 0	559 0 11
XI.—Refunds	.....	149 4 11	.....	.....	.....	331 10 0	480 14 11
Total of A.—Conservancy and Works	326 15 8	11,387 4 10	108 9 0	8,019 12 7	2,826 2 10	3,468 12 7	31,137 9 6
B.—ESTABLISHMENTS.							
I.—Salaries.							
1. Pay of Deputy-Conservator	5,950 0 0	.....	.....	.....	.....	.....	5,950 0 0
2. Pay of Control and Executive Officers	.....	4,200 0 0	.....	3,000 0 0	2,200 0 0	.....	9,400 0 0
3. Protective Establishments	.....	1,176 8 0	647 4 2	1,123 8 6	1,098 7 9	.....	4,045 12 5
4. Office Establishments	2,006 4 0	348 0 0	66 0 0	278 1 0	238 8 8	.....	2,936 13 8
5. Deputation and special allowances.							
II.—Travelling Allowances.							
1. Deputy-Conservator	1,528 8 9	.....	.....	.....	.....	.....	1,528 8 9
2. Control and Executive Officers	.....	1,193 8 0	.....	1,191 8 0	1,415 10 2	.....	3,800 10 2
3. Protective Establishments	.....	.....	.....	.....	.....	49 0 0	49 0 0
4. Office Establishments	3 0 0	.....	.....	8 14 0	.....	.....	11 14 0
III.—Contingencies.							
1. Stationery	0 14 0	.....	0 8 0	8 2 6	.....	.....	9 8 0
2. Carriage of tents and records	97 0 0	.....	22 1 6	.....	.....	.....	119 1 6
3. Pay of Police guards.							
4. Sundries	106 7 6	163 7 0	18 12 10	38 4 0	0 10 0	.....	327 9 4
5. Official postage	130 5 0	20 5 0	5 0 0	28 12 0	21 13 0	.....	206 3 0
Total of B.—Establishments	9,822 7 3	7,101 12 0	759 10 6	5,677 1 6	4,975 1 2	49 0 0	28,385 0 5
Grand Total of all Expenditure	10,149 6 11	18,489 0 10	868 3 6	13,696 14 1	7,801 4 0	3,517 12 7	59,522 9 11

Form No. 29.

FOREST DEPARTMENT, ASSAM.

Annual Statement of Outstandings and Liabilities on account of Contractors or Disbursers for 1874-75.

Detail of Division.	Department Debtor.			Department Creditor.			Balance Due.	
	At commencement of the year.	Recoveries in cash, and value of supplies and work done.	Total.	At commencement of the year.	Payments made.	Total.	To Department (Outstandings).	By Department (Liabilities).
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Direction	....	370 15 8	370 15 8	370 15 8	.....	370 15 8	.....	.....
Gauhâti	....	8,170 5 10	8,170 5 10	1,000 0 0	7,175 5 10	8,175 5 10	5 0 0	.....
Tezpur	....	10,484 4 4	10,484 4 4	500 0 0	10,248 5 10	10,748 5 10	264 1 6	.....
Golâghât	....	6,091 0 6	6,091 0 6	796 8 9	5,761 8 9	6,558 1 6	467 1 0	.....
Goâlpâra	....	20 0 0	20 0 0	.....	20 0 0	20 0 0	.....	.....
Civil Officers ..	....	.....	.....	.....	16 8 0	16 8 0	16 8 0	.....
Total ..	....	25,136 10 4	25,136 10 4	2,667 8 5	23,221 12 5	25,889 4 10	752 10 6	.....

Form No. 30.

FOREST DEPARTMENT, ASSAM.

Annual Account of Forest Revenue for the year 1874-75.

		Rs. As. P.			Rs. As. P.
1st April, 1874	To Assets—		31st March, 1875 ..	By Revenue collected—	
	Value of timber at the commencement of year.	3,032 4 0		Cash and Transfers	64,749 3 3
	Value of other stock „	13,534 0 0	Ditto ..	By Assets—	
	Dues* to Forest Department ..	2,667 8 5		Value of timber at close of year	4,629 0 0
31st March, 1875 ..	To outlay during the year	59,522 9 11		Value of other stock „	13,647 0 0
	Total.....	78,756 6 4		Dues* to Department	2,101 14 6
Ditto	To profit for the year.....	6,370 11 5		Total.....	85,127 1 9
	Total.....	85,127 1 9			

* Difference between dues to, and dues by, the Department are explained in detail below, and in accordance with entries in Statements 9 and 41 :—

Explanation of difference between dues to, and dues by, the Department.

Dues to Forest Department on the 1st of April, 1874.

	Rs. As. P.
On account of sales	.....
„ „ outstanding advances	2,667 8 5
Total.....	2,667 8 5

Dues to Forest Department on the 31st of March, 1875.

	Rs. As. P.
On account of sales	1,349 4 0
„ „ outstanding advances	752 10 6
Total.....	2,101 14 6

Form No. 39.

FOREST DEPARTMENT, ASSAM.

Statement of Timber brought to Depôts from the different Forest Divisions during 1874-75.

Name of River or Division.	Forests.	Description of Timber.	Pieces.	Cubic feet.	Total of each River or Division.	
					Pieces.	Cubic feet.
				ft. in.		ft. in.
Gauhâti Division	Pantan Reserve	Sâl logs	368	11,638 0	....	....
„ „	„ „	Boats (dug-outs)	8	....	366	11,638 0
Tezpur „	Ballpara „	Sâl logs	10	156 3	....	....
„ „	„ „	„ (dead wood)	703	3,650 1	....	....
„ „	„ „	Uriam	64	547 10	....	....
„ „	„ „	Ajhar	10	88 0	....	....
„ „	„ „	Boats (dug-outs)	1	....	788	4,442 2
Golâghât „	Nambor „	Nahor	204	5,407 5	....	....
„ „	„ „	Ajhar	279	6,013 3	....	....
„ „	„ „	Boats (dug-outs)	2	....	485	11,420 8
		Total ..	....	....	1,639	27,500 10

Form No. 40.

FOREST DEPARTMENT, ASSAM.

Annual Timber Account for 1874-75.

Description of Timber and Scantling.	Pieces.	Total.	Description of Timber and Scantling.	Pieces.	Total.
I.—Stock in hand at the commencement of the year—			I.—Removed by purchasers—		
Gauhâti Division	48		Gauhâti Division	200	
Tezpur „	....		Tezpur „	738	
Golaghat „	122		Golaghat „	561	
		170			1,499
			II.—Lost and used by the Department—		
			Gauhâti Division	73	
			Tezpur „	7	
			Golaghat „	....	
					80
II.—Received during the year—			III.—Balance in hand at the close of the year—		
Gauhâti Division	366		Gauhâti Division	141	
Tezpur „	788		Tezpur „	43	
Golaghat „	485		Golaghat „	46	
		1,639			230
Total	....	1,809	Total	....	1,809

Form No. 41.

FOREST DEPARTMENT, ASSAM.

Statement showing the amount realized on account of the different classes of Timber sold during the year 1874-75.

Divisions and Descriptions of Timber.	Number of logs and pieces.	Average cubical contents per log.	Amount realized and due on account of timber sold.	Average amount per log.	Average amount per 100 cubic feet.
		feet. inches.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Gauhati Division — Sâl logs	200	33 9	5,603 0 0	28 0 2	82 12 11
Tezpur Division — Sâl logs	10	15 7	126 15 3	12 11 1	81 4 0
Tezpur Division — „ (dead wood)	666	5 3	3,016 15 3	4 8 5	85 1 6
Tezpur Division — Uriam	52	7 1	276 15 0	5 5 2	74 15 5
Tezpur Division — Ajhar	10	8 9	66 0 0	6 9 7	75 0 0
Golaghat Division — Nahor	248	24 4	4,586 12 0	18 7 10	75 13 2
Golaghat Division — Ajhar	313	24 1	5,669 4 0	18 1 9	75 0 0
Total....	1,499	16 11	19,345 13 6	13 6 3	78 9 0
Deduct amount realized in 1873-74.			1,600 0 0		
Deduct amount due, but not realized during the year			1,849 4 0		
Balance....			16,296 9 6		
Add amount realized on account of former years			.....		
Add amount collected by District Officers			29,353 0 8		
Total shown as revenue on account of timber sales			45,749 10 2		

Form No. 42.

FOREST DEPARTMENT, ASSAM.

Statement showing the amount expended on account of Timber received from Divisions during 1874-75.

Divisions.	Number of logs and pieces.	Cubical contents.	Timber expenses.	Conservancy expenses, cost of establishment, &c., of the department, excluding direction.	Total amount expended, including direction.	Average cubical contents per log or piece.	Average amount paid per 100 cubic feet.	Remarks.
		feet. inches.	Rs. As. P.	Rs. As. P.	Rs. As. P.	feet. inch.	Rs. As. P.	
Gauhâti Division ..	366	11,638 0	641 7 0	17,847 9 10	21,888 8 5	32 0	188 1 2	The figures in column 5 are the total expenditure of the department, including civil officers, except timber expenses and direction.
Tezpur „ ..	788	4,442 2	1,331 15 6	12,364 14 7	17,006 5 8	5 7	384 13 10	The figures in column 6 are the expenditure shown in column 5, with direction added.
Golâghât „ ..	485	11,420 8	399 15 6	7,832 12 6	11,132 3 7	23 7	97 7 7	The figures in column 8 are the average cost per 100 cubic feet, including the whole expenditure of the department and by civil officers.
Total....	1,639	27,500 10	2,378 6 0	37,545 4 11	50,117 1 8	20 4	223 7 6	

FOREST DEPARTMENT, ASSAM.

Area of Reserved Forests in 1874-75.

Reserved Forests.		Area in 1873-74.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1874-75.
	Kámrúp District.	Square miles.	Square miles.	Square miles.	Square miles.
GAUHATI DIVISION ..	Barduar Sál forest	20	2·25	.....	22·25
	Pantan ditto	12	.....	.....	12
	Matinkhar ditto	3·5	.....	.....	3·5
	Kulsi plantation Sál forest	5·5	.....	.....	5·5
	Jara ditto	.....	1·6	.....	1·6
	Milmillia ditto	.....	2·1	.....	2·1
	Nowgong District.				
	Kholuhat Sál forest	2·25	0·75	.....	3·
	Deboka ditto	0·81	.....	.....	0·81
	Darrang District.				
TEZPUR DIVISION	Balipara forest	87·84	.....	.....	87·84
	Khalingduar forest	9·75	.....	.....	9·75
	Sibságar District and Nága Hills Agency.				
GOLAGHAT DIVISION ..	Nambor forest	62·93	326·63	.....	389·56
	Nowgong District.				
	Mikir Hill forest	65	.....	.....	65
	Total.....	269·58	333·33	.....	602·91

FOREST DEPARTMENT, ASSAM.

Area of Unreserved Forests in 1874-75.

Unreserved Forests.		Area in 1873-74.	Added during the year	Declared reserves during the year	Total remaining in 1874-75.	REMARKS.
	Goálpára District.	Sqr. miles.	Sqr. miles.	Sqr. miles.	Sqr. miles.	
GOALPARA DIVISION ..	Bijni Duar	12·56	....	....	12·56	Gazetted as open forests.
	Sidli „	74·37	....	....	74·37	
	Cheerang „	245·76	....	....	245·76	
	Ripu „	65	....	....	65	
	Goma „	24·65	....	....	24·65	
	Cachar District.					
CACHAR DIVISION ..	Within the Inner Line	336	....	....	336	Proposed as reserves.
	Beyond „	489	....	....	489	
	Sylhet district	273	....	....	273	
	Within Revenue Limits.					
CIVIL OFFICERS	Goálpára	8	....	....	8	Undefined forests, protected by the Deputy Commissioners, and the Political Agent, Nága Hills.
	Kámrúp	89	....	6	83	
	Darrang	400	....	....	400	
	Nowgong	53	....	1	52	
	Sibságar	335	....	....	335	
	Lakhimpur	2,500	....	....	2,500	
	Sylhet	27	....	....	27	
	Cachar	4	....	....	4	
	Beyond Revenue Limits.					
	Khási and Jaintiá Hills	150	....	....	150	
	Nága Hills	852	....	327	525	
	Lakhimpur	1,500	....	....	1,500	
	Cachar	11	....	....	11	
	Total ..	7,449·24	....	334	7,115·24	

FOREST DEPARTMENT, ASSAM.

Area of Plantations for the year 1874-75.

Name of plantation.	Area in 1873-74.	Total cost.	Area added during 1874-75.	Amount expended during 1874-75.	Total area up to 1874-75.	Total expenditure incurred up to 1874-75.	Remarks.
Gauhati Division.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	
Kulsi plantation.							
Caoutchouc	35	377 13 0	....	605 14 0	35	983 11 0	
Teak	33	2,606 5 5	20	1,433 10 6	53	4,041 15 11	
Sisu	10	481 7 8	10	307 15 9	20	789 7 5	
Tezpur Division.							
Charduar plantation.							
Caoutchouc	180	415 3 6	....	3,347 4 6	180	3,762 8 0	
Bamuni Hill plantation.							
Caoutchouc	....	.....	10	549 11 3	10	549 11 3	
Golaghat Division.							
Makum plantation.							
Teak	4	1,047 7 6	....	81 0 0	4	1,128 7 6	
Shillong.							
Timber plantation	....	.....	4½	400 0 3	4½	400 0 3	
Cinchona ditto	1½	.....	....	320 0 0	1½	320 0 0	
Orchard	5	2,004 10 11	....	307 5 7	5	2,312 0 6	Sold during the year, and trees transferred to the Shillong farm.
Total	208½	6,935 0 0	44½	7,352 13 10	313 1/6	14,287 13 10	

FOREST DEPARTMENT, ASSAM.

Area of Forest Tracts protected from fire up to 1874-75.

Forests.		Area in 1873-74.	Total cost.	Additional area protected in 1874-75.	Amount expended in 1874-75.	Total area protected up to 1874-75.	Total expenditure incurred up to 1874-75.
	Kámrúp District.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	Acres.	Rs. As. P.
Gauhati Division	Bardwar reserve	6,400	21 10 0	8,800	423 12 0	15,200	445 6 0
	Pantan „	3,200	87 1 0	4,480	228 0 0	7,680	265 1 0
	Matiakhar „	640	14 0 0	1,600	75 4 0	2,240	89 4 0
	Kulsi plantation reserve	....	.....	3,520	114 0 0	3,520	114 0 0
	Jara reserve	....	.....	1,040	78 4 0	1,040	78 4 0
	Milmillia Reserve	....	.....	1,400	75 0 0	1,400	75 0 0
	Nowgong District.						
	Kholahat reserve	960	9 12 0	.....	94 13 0	.....	104 9 0
	Darrang District.						
Tezpur Division	Balipara reserve	320	10 0 0	230	23 14 0	550	33 14 0
	Garumari „	....	.....	50	14 0 0	50	14 0 0
	Khási and Jaintia Hills.						
Civil Officers	Shillong Forests	....	.....	1,920	76 5 0	1,920	76 5 0
	Total	11,520	92 7 0	23,040	1,203 4 0	33,600	1,295 11 0

FOREST DEPARTMENT, ASSAM.

Prosecutions for Breaches of Forest Rules during the year 1874-75.

Divisions.	Number of prosecutions.		Convictions obtained or still pending.			
	Number of cases.	Number of persons.	Number of cases.		Number of Persons.	
			Convictions.	Pending.	Convicted.	Under trial.
Gauhati Division	1	2	1	.....	2	.....
Tezpur „	None	.....	.....	.....	.....	.....
Golaghat „	1	1	1	.....	1	.....
Goalpara „	2	5	3	.....	5	.....
Total	4	8	4	.....	8	.....

GUSTAV MANN,

Offg. Deputy-Conservator of Forests, Assam.

APPENDIX I.

1.—*List of Trees growing in the Brahmaputra Valley.*

Current number.	Botanical Name.	Native Name.	Size of tree when full grown, in feet.	Remarks.
1	Shorea robusta	Sál	6 to 15 feet.	Growing collectively; forming forests of its own. Seasoned timber does not float. Quality of timber superior, used for canoes and building.
2	Dalbergia Sissoo	Sisu	6 to 12 „	Growing collectively, chiefly on newly-formed land on river banks. Unseasoned timber does not float. Quality of timber superior, used for furniture and building.
3	Lagerstroemia Reginæ	Ajhar	6 to 10 „	Growing chiefly at the margin of mixed plain forests; timber superior; canoes and building; floats.
4	Mesua ferrea	Nahor	5 to 6 „	Growing in mixed plain forests and lower hill forests; timber good, chiefly used for house posts; does not float. Flowers in April; seed ripens in August.
5	Artocarpus Chaplasha	Sam	6 to 15 „	Growing in mixed plain forests and mixed lower hill forests, Quality of timber superior; chiefly used for canoes, floats, also for furniture and building.
6	Artocarpus integrifolia	Kuthal	6 to 8 „	Tree not indigenous, but found in many of the mixed plain forests, where they were probably planted at first by villagers before the Burmese invasion. Timber superior; used for furniture, posts, and buildings; timber floats.
7	Michelia Champaca	Tita sappa	6 to 10 „	Grows scattered in mixed plain and lower hill forests; floats; used for canoes, furniture, buildings; is superior.
8	Cedrela Toona	Henduri poma	6 to 15 „	Grows scattered in mixed plain and lower hill forests. Timber floats; superior; used for furniture, canoes, building. Flowers in March; seed ripens in June and July.
9	Gmelina arborea	Gomari	6 to 8 „	Growing chiefly in deciduous forests. Timber good; used for canoes, planks, drums, and building generally; floats.
10	Cinnamomum glanduliferum	Gunseral	6 to 10 „	Growing in mixed plain forests and lower hill forests; chiefly used for canoes, building; timber very durable; floats.
11	Eugenia mangifolia	Jamu	4 to 5 „	Grow very scattered in mixed plain forests; used for building; timber superior, but rare.
12	Eugenia lanceæfolia		6 to 10 „	
13	Eugenia Jambolana		6 to 10 „	
14	Terminalia bicolorata	Hulluch	6 to 10 „	Growing in mixed plain forests, chiefly on river banks; timber floats, and is of middling quality; used for canoes and ordinary building purposes.
15	Bishofia Javanica	Uriam	6 to 10 „	Growing in mixed plain forests, chiefly in the neighbourhood of rivers. Timber good and very useful for posts for bridges; floats.
16	Premna sp	Gohora	4 to 6 „	Growing in Upper Assam in the mixed plain forests; timber of good quality, but short; chiefly used for house posts; floats.
17	Albizzia odoratissima	Koroi	6 to 8 „	Growing very scattered; chiefly in deciduous and savannah forests; timber floats; of good quality for building.
18	Cassia Fistula	Sunaru	4 to 6 „	Growing in mixed plain forests and lower hill forests; timber very durable; chiefly used for house posts; does not float.
19	Terminalia citrina	Hillika	6 to 8 „	Growing in mixed plain forests and lower hill forests; scattered; timber floats; is of middling quality; used for planks and ordinary building purposes.
20	Terminalia tomentosa	Amari	6 to 10 „	Growing in mixed plain and lower hill forests; timber floats; chiefly used for canoes and ordinary building purposes; timber of middling quality.
21	Amoora Rohituka	Amora Amari	3 „	Growing in the mixed forests of the plains and lower hills; used for ordinary domestic purposes; floats.
22	Morus lævigata	Bola	„	Growing very scattered in mixed plain forests; timber floats, and is superior; chiefly used for boat-oars and furniture.
23	Shorea [aff. S. paniculata]	Makai	6 to 10 „	Growing in lower hill forests; timber floats; is middling; chiefly used for canoes and planks.
24	Vitex peduncularis	Osai	3 to 4 „	Growing in the lower hill forests; wood inferior; floats.
25	Garuga pinnata	Gendelli poma	6 to 12 „	Growing in mixed plain and lower hill forests; used for canoes, planks, and ordinary building purposes; timber middling; floats.
26	Acacia Catechu	Koir	4 to 5 „	Growing collectively, chiefly on newly-formed land on river banks; seasoned timber does not float; chiefly used for house posts and charcoal burning; timber good.
27	Stereospermum chelonoides	Parolli	6 to 8 „	Growing in mixed plain and lower hill forests; used for canoes, planks, and ordinary building purposes; timber middling; floats.
28	Anthocephalus Cadamba	Roghu	6 to 8 „	Growing chiefly at the margin of mixed plain and lower hill forests; chiefly used for planks, for tea-boxes, and ordinary building purposes; is of middling quality, and floats.
29	Anthocephalus cordifolia		6 to 8 „	
30	Michelia oblonga	Phul sappa	6 to 10 „	Growing in mixed plain and lower hill forests; timber floats; is middling; used for canoes and rough furniture.
31	Ehretia serrata	Bual	4 to 6 „	Growing scattered in the mixed plain forests; timber of middling quality; floats; used for oars, planks, and ordinary building purposes.
32	Garcinia pedunculata	Borthekra	6 „	Growing in the mixed plain forests; floats; is of middling quality; used only for planks, beams, and ordinary building purposes.

Current Number.	Botanical Name.	Native Name.	Size of tree when full grown, in feet.	Remarks.
33	Mangifera sylvatica	Bun-am	6 to 12 feet	Growing in mixed lower hill forests; used for rough furniture, planks, and ordinary domestic purposes; quality middling; floats.
34	Mangifera Indica	Ghari am	6 to 10 „	Tree is met with in many of the mixed plain forests, where it has in all probability been planted before the Burmese invasion by the villagers; timber like the above.
35	Echinocarpus tiliaceus	Phul hingori	6 to 8 „	Growing in mixed plain forests and lower hill forests. Timber floats, and is middling; only used for planks and beams, where not exposed to changes of weather.
36	Altingia excelsa	Jutili	6 to 10 „	Growing collectively on the margin or adjoining mixed plain forests; wood inferior, but used for ordinary building and domestic purposes.
37	Castanopsis rufescens.....	Hingori	6 „	Grows in mixed lower hill forests. Wood good for all ordinary purposes, lasts about four years, when exposed to the weather.
38	Castanopsis Indica	Serang	6 to 8 „	Growing in lower hill forests; wood used for building and other purposes.
39	Quercus lanceæfolia	Bucklai	3 to 4 „	Growing in mixed lower hill forests; used for ordinary purposes.
40	Engelhardtia Roxburghiana	Rumgach	3 to 5 „	Growing in the lower hill forests; wood inferior, but used for ordinary domestic purposes.
41	Duabanga sonneratoides	Kochan	6 to 10 „	Growing at the margin of lower hill forests; timber inferior; floats; sometimes used for canoes, otherwise only for ordinary domestic purposes.
42	Alstonia scholaris	Sutiana	6 to 8 „	Growing in the mixed plain forests; wood inferior, but much used for tea-boxes; floats.
43	Schima [Gordonia] mollis	Makriah Chellowni....	6 to 12 „	Growing in sál and other deciduous forests, also in lower hill forests; used for canoes, planks, and ordinary building purposes; is of middling quality; floats.
44	Bombax Malabaricum.....	Simul	6 to 15 „	Growing chiefly on chur lands and the margins of the mixed plain forests; wood inferior, but largely used for tea-boxes; floats; also used for canoes.
45	Dipterocarpus Bondii	Hollong	6 to 15 „	Growing in lower hill forests; timber inferior; soft; floats; very rarely used for canoes; does for planks and ordinary domestic purposes.
46	Chickrassia tabularis	Boga-poma.....	6 to 8 „	The same as the above.
47	Phyllianthus Emblica	Amluki	3 „	Growing in deciduous plain and lower hill forests; wood inferior; used sometimes for house posts; floats.
48	Lagerstroemia parviflora	Sidah	4 to 5 „	Growing in deciduous plain and lower hill forest; chiefly used for firewood; floats.
49	Celtis tetranthera	Huktapatia	6 to 8 „	Growing in mixed lower hill forests; wood good and tough, used for ordinary domestic purposes.
50	Salix tetrasperma	Bhe	3 to 4 „	Growing near beels and on low land; wood inferior, but sometimes used for posts and planks; floats.
51	Vitex altissima	Ahay	3 to 4 „	Growing in the mixed plain forests: wood good, but small; used for posts and planks occasionally; floats.
52	Canarium Bengalense.....	Bisjang	10 to 12 „	Growing in mixed lower hill forest; wood inferior, gives a dark coloured gum.
53	Elæocarpus lanceæfolia	Sakalang	10 to 12 „	Growing in mixed lower hill forest; wood inferior; fruit eaten.
54	Garcinia anomala.....	Usaquang	6 to 8 „	Growing in mixed lower hill forests; wood inferior.
55	Dillenia Indica	Otangah	4 to 6 „	Growing in the mixed plain forests; fruits eaten; wood inferior, only used for firewood and burning of charcoal.
56	Dillenia pentagyna	?	4 „	Growing in the mixed plain forests; wood inferior; used for firewood only; floats.
57	Toricellia tiliæfolia	Bellu	6 to 20 „	Growing in the mixed lower hill forests, and attains a great size; wood inferior; not much used, except for firewood.
58	Bursera serrata	Murtenga	4 to 5 „	Growing in the mixed plain forests; wood inferior, but sometimes used for planks or posts; floats.
59	Michelia sp.	Gowri sappa	4 to 6 „	Growing in the mixed lower hill forests; wood inferior, but sometimes used for ordinary domestic purposes; floats.
60	Magnolia sphenocarpa	Burramtoori	3 to 4 „	Growing in the mixed plain and lower hill forests; wood middling, but small; sometimes used for posts; floats.
61	Talauma Rabaniana	Sappa	3 to 5 „	Growing in the mixed plain forests and lower hill forests; wood inferior, but sometimes used for planks and rough furniture.
62	Tetranthera laurifolia	?	3 to 4 „	Growing in the mixed plain forests; wood not used.
63	Carallia integerrima	Kujitekrah	3 to 4 „	Growing in the mixed plain and lower hill forests; wood inferior; fruit eaten by the natives.
64	Holigarna racemosa	Amdali	4 to 6 „	Growing in the mixed plain forests; wood inferior, but occasionally used for canoes, and planks; floats.
65	Elæocarpus rugosus.....	?	6 to 8 „	Growing in mixed lower hill forests; wood inferior.
66	Elæocarpus aristatus	?	6 to 8 „	
67	Quercus plicata	Sahu hingori.....	3 to 4 „	Growing sparingly in the mixed lower hill forests; wood rough, but small; used sometimes for house posts.
68	Aquilaria Agallocha	Sasi	6 to 8 „	Wood inferior; bark was formerly used instead of paper for writing on by the Assamese.
69	Lacronychia pedunculata	Loajam	4 to 6 „	Growing in mixed lower hill forests; wood inferior; used for ordinary domestic purposes.
70	Spondias orientalis.....	Jupong	4 to 6 „	Growing in mixed plain and lower hill forest; wood inferior; bark used for carrying loads.

Current number.	Botanical name.	Native names.	Size of tree when full grown, in feet.	Remarks.
71	Celtis tetrandra	Huktapattia	3 to 4 feet.	Growing in the mixed plain and lower hill forests; wood inferior, but sometimes used for canoes and planks.
72	Bauhinia Malabarica	Kattra.....	3 to 4 „	Growing in the plains and lower hill forests; wood inferior; occasionally used for house posts, but chiefly for firewood.
73	Bauhinia tomentosa			
74	Holarrhena antidysenterica	Dudoory	3 to 4 „	Growing in the plain and lower hill forests; wood hard, but otherwise inferior; used sometimes for posts and other domestic purposes; floats.
75	Aesculus punduana	Ekuhea	3 to 4 „	Growing in the mixed plain forests, chiefly in the neighbourhood of rivers; wood inferior; seldom used; floats.
76	Barringtonia racemosa	Kumringah	4 to 5 „	Growing in the mixed plain forests; wood inferior; used for ordinary domestic purposes; floats.
77	Actinodaphne obovata	Cherritinga	3 to 4 „	Growing in the mixed plain forests; wood inferior; seldom used; floats.
78	Actinodaphne angustifolia	Samkoh	4 to 5 „	Growing in the mixed plain forests; wood inferior; seldom used; floats.
79	Mallotus philippinensis	Gungai	4 to 5 „	Ditto ditto ditto ditto.
80	Grewia vestita	?	3 to 4 „	Growing in mixed plain forests; wood small, but durable; used for posts and planks and other domestic purposes; floats.
81	Vatica lanceæfolia	Morhal	2 to 3 „	Growing in mixed lower hill and mixed plain forests; wood inferior.
82	Odina Wodier	?	4 to 6 „	Growing in the lower hill forests; is scarce; wood of good quality; used for posts and other domestic purposes.
83	Mimusops Elengi	?	2 to 3 „	Growing in the mixed plain and lower hill forests; wood not used except for firewood.
84	Flacourtia cataphracta	?	2 to 3 „	Growing in the mixed plain and lower hill forests; wood not used; fruit eaten.
85	Castanopis arguntea	Hingori	3 to 4 „	Growing in the lower hill forests; wood sometimes used for ordinary domestic purposes; floats.
86	Castanopis tribuloides	Bar hingori	6 to 8 „	Growing in mixed plain forests and lower hill forests. Timber floats, and is middling; only used for planks and beams where not exposed to changes of weather.
87	Garcinia lanceæfolia	?	2 to 3 „	Growing in the lower hill forests; wood not used.
88	Terminalia bellerica	Hullnoh	4 to 6 „	Growing in mixed plain forests, chiefly on river banks; wood used for ordinary domestic purposes.
89	Briedelia sp.	?	3 to 4 „	Growing in the mixed plain and lower hill forests; wood inferior.
90	Callicarpa arborea	?	2 to 3 „	Growing in the lower hill forests; wood not used.
91	Careya arborea	Kumbi	2 to 3 „	Growing in deciduous plain forests and Sál forests; wood useless; floats.
92	Semecarpus Anacardium	Bhola	2 to 3 „	Growing in the mixed plain forests; wood next to useless; floats.
93	Ficus elastica	Attah bur	30 to 40 „	Caoutchouc trees.
94	Ficus lacifera	Bur	20 to 30 „	
95	Ficus comosa	Juri pakri	10 to 20 „	The lac insect is reared on these.
96	Ficus cordifolia	Pakri	10 to 20 „	
97	Ficus radicans	?	6 to 10 „	Useful for charcoal for tea manufacture.
98	Ficus hipida	?	5 to 6 „	
99	Ficus sp.....	?	6 to 10 „	
100	Ficus infectoria	?	10 to 20 „	
101	Sterculia villosa	Udal.....	4 to 6 „	The bark is used for rope manufacture.
102	Artocarpus Lakoocha.....	Dowa	6 to 10 „	The bark is chewed by the natives.
103	Excœcaria baccata	Adamsali	4 to 6 „	
104	Machilus odoratissima	Soom	4 to 6 „	Silk-worm plants.
105	Tetranthera monopetala	Sualu	3 to 4 „	
106	Cyllcodaphne nitida	Kotoloah	3 to 4 „	
107	Symplocos grandiflora	Bumroti	3 to 4 „	
108	Cinnamomum obtusifolium	Patichunda	4 to 6 „	
109	Tetranthera polyantha	Adakuri	2 to 3 „	
110	Tetranthera glauca.....	Diglotti	2 to 3 „	
111	Morus indica	Nuni	1 to 2 „	
112	Heteropanax fragrans	Kosoru	1 „	Growing in mixed plain and lower hill forests. The Eri silk-worms are fed on the leaves of this tree in the Lakhimpur district.

2.—*List of Trees growing in Cachar and Sylhet.*

Current number.	Botanical name.	Native name.	Size of tree when full grown, in feet.	Remarks.
1	Lagerstrœmia Reginæ	Jarul	6—10 feet ..	The most prized wood in Sylhet and Cachar for all works, specially boat-building.
2	Mesua ferrea	Nagessur	5—6 „ ..	Very durable; mostly used for building.
3	Artocarpus Chaplasha	Cham	6—10 „ ..	Chiefly used for furniture.
4	Artocarpus integrifolia	Kuthal	6—8 „ ..	This tree is not indigenous, but is frequently met with in the neighbourhood of roads, and its wood is most valuable.
5	Michelia sp.	Champa	6—8 „ ..	Much prized for furniture, building, and other purposes, but is scarce.
6	Isonandra polyantha	Sill-kurta	6—10 „ ..	Wood red and superior; does not float. One of the woods most prized.
7	Isonandra polyandra	Dollu-kurta ..	6—10 „ ..	Wood white, and floats; used for planking and general purposes.
8	Cedrela Toona	Poma	8—12 „ ..	Used for furniture and planking; very much liked, but scarce.
9	Gmelina arborea	Gumai	6—8 „ ..	Valuable wood for furniture and building.
10	Cinnamomum glanduliferum	Gundroi	6—10 „ ..	Much prized for boat-building and other purposes.
11	Diospyros Toposia	Gulail	4—5 „ ..	Very hard wood and durable; used for posts and beams; does not float; scarce.
12	Terminalia bicolorata	Jhalna	8—10 „ ..	The wood chiefly prepared for scantlings, planking, and specially for tea-boxes.
13	Bischoffia Javanica	Joki	6—8 „ ..	Very serviceable wood for large scantlings and posts for bridges; lasts well in the water.
14	Dysoxylon binectariferum	Rangi-rata	6—8 „ ..	Much sought after for boats, planking, and other building purposes.
15	Premna sp.	Dollo-ujah	4—6 „ ..	Most useful tree for house posts. Very durable.
16	Albizzia odoratissima	Moroi	6—8 „ ..	Wood used for scantling and other building purposes. Chiefly growing in open localities.
17	Cassia Fistula	Bandolat	4—6 „ ..	Very dark and hard wood; used for furniture and building. Very durable. Does not float.
18	Terminalia citrina	Hortucki	6—8 „ ..	A good serviceable wood for all ordinary purposes. Floats.
19	Vitex peduncularis	Hila-auwal ..	4—5 „ ..	Very useful wood for posts and beams. Does not float.
20	Cynometra polyandra	Peng	6—8 „ ..	Very useful wood for scantlings, and said to make very good charcoal.
21	Podocarpus bracteata	Jinari	4—6 „ ..	Used chiefly for oars. Floats. Much liked for general work.
22	Machilus sp.	Kurrull	5—10 „ ..	Red wood of good quality; used for posts, beams, and planks. Does not float.
23	Dipterocarpus sp.	Koroll	10—12 „ ..	Wood of good quality, used for building. Does not float.
24	Quercus lanceæfolia	Hingori	6—8 „ ..	Used for all ordinary building purposes.
25	Castanopsis Indica	Tallo	8—10 „ ..	Wood used for building and other purposes.
26	Mangifera sylvatica	Bun-am	10—15 „ ..	Building and other useful purposes, when kept dry and not exposed to the weather.
27	Stereospermum chelonoides	Parcya-auwal ..	6—8 „ ..	Very serviceable wood for ordinary domestic purposes and tea-boxes.
28	Anthocephalus Cadamba	Caddum	8—10 „ ..	Ditto ditto ditto.
29	Echinocarpus tiliaceus	Seeta-saaz	6—8 „ ..	Wood light and soft, but used for ordinary domestic purposes.
30	Engelhardtia spicata	Bor-patta-jam ..	6—8 „ ..	Wood serviceable for planking and scantlings. Floats.
31	Duabanga sonneratoides	Jarul-jhalna ..	6—10 „ ..	Wood chiefly used for planking and beams; not suited for posts.
32	Alstonia scholaris	Sattni	6—8 „ ..	Used for tea-boxes; floats.
33	Schima mollis	Jam	6—10 „ ..	Good serviceable wood for beams and planking. Chiefly met on the hills.
34	Bombax Malabaricum	Simul	6—15 „ ..	Soft and inferior wood; but useful for making tea-boxes.
35	Erythrina Indica	Madar	4—6 „ ..	Wood soft and inferior; used sometimes for planking.
36	Tetranthera monopetala	Huara	4—6 „ ..	Wood soft and inferior; used for inferior planking and firewood.
37	Dillenia Indica	Chilta	6—10 „ ..	Used for the manufacture of charcoal and for firewood only.
38	Heteropanax fragrans	Honah	1—2 „ ..	The eri silkworm feeds on this.
39	Artocarpus Lakoocha	Dawa	6—10 „ ..	Fruit eaten, and inferior wood used for burning only.
40	Ficus elastica	Bur	30—40 „ ..	The caoutchouc tree.
41	Ficus religiosa	Bor-bur	10—20 „ ..	Wood soft and inferior; but fit for making charcoal used in the manufacture of tea.
42	Ficus cordifolia	Sat-bur	10—20 „ ..	

PALMS.

1	Licuala peltata	Patti	Small tree ..	Leaves employed for the manufacture of the umbrellas commonly used in the country.
2	Areca gracilis	Ranga	Ditto ..	Used for building native huts and roofing.
3	Areca triandra	Guah	Ditto ..	
4	Calamus tenuis	Jalla-bait	Climbingplant	All used for tying, and a multitude of other works for which canes are employed in other countries.
5	Calamus Jenkinsianus	Gola-bait	Ditto ..	
6	Calamus Mastersianus	Quabi-bait	Ditto ..	
7	Calamus sp.	Rangijali-bait ..	Ditto ..	
8	Calamus flagellum	Nagagola-bait ..	Ditto ..	
9	Calamus gracilis	Hundi-bait ..	Ditto ..	

3.—*List of Trees growing in the Khási and Jaintiá Hills, in the Mixed Upper Hill Forests.*

Current number.	Botanical name.	Native name.	Size of tree when full grown, in feet.	REMARKS.
1	Quercus sp. nov.	Dingwa	6 feet.	Wood considered the best for building purposes.
2	Quercus Griffithii	Dingim	„	Wood good for building and other purposes.
3	Schima Wallichii	Dingan	4—5 „	Ditto ditto.
4	Castanopsis tribuloides	Dingsaot	6 „	Good serviceable wood for building; fruit eaten.
5	Castanopsis sp.	Dingsning	„	Wood used for building and all ordinary domestic and farming purposes where procurable.
6	Castanopsis hystrix	„	„	
7	Quercus lanceæfolia	„	4—5 „	
8	Quercus spicata	Dingjing	„	
9	Quercus fenestrata	„	„	
10	Quercus serrata	Dingrittiang	6 „	
11	Quercus dealbata	Dingree	„	
12	Taxus baccata	Dingsabieh	8—12 „	Wood superior, but scarce, and the tree held sacred by some of the people.
13	Podocarpus nerifolia	„	6—8 „	
14	Pinus Kasya	Dingsa	„	The most extensively used wood.
15	Betula accuminata	Dingleen	„	Wood used for ordinary purposes.
16	Cinnamomum caudatum	Dinglatterdop	„	Ditto ditt
17	Rhus succedanea	Dingkain	4—5 „	Ditto ditto.
18	Daphnidium pulcherrimum	Dingpingwai	6 „	Best wood for dao handles.
19	Myrica Nagi	Dingsolir	„	Wood good ; bark used for poisoning fish.
20	Engelhardtia spicata	Dinglaba	6—8 „	Planks, spoons, and other domestic purposes.
21	Pyrus granulata	Dingsopha	3—4 „	Wood good ; fruit eaten.
22	Prunus ferruginea	Dingsohlong	„	Ditto ditto.
23	Bucklandia populnea	Dingdah	8—10 „	Wood used for ordinary purposes.
24	Machilus odoratissima	Dingpingwait	4—5 „	Ditto ditto.
25	Melia composita	Dingkurlong	6—8 „	Ditto ditto.
26	Erythrina arborescens	Dingsong	3—4 „	Ditto ditto.

APPENDIX II.

REGISTER OF RESERVED FORESTS IN THE PROVINCE OF ASSAM ON THE 1ST APRIL, 1875.

GAUHATI FOREST DIVISION.

KAMRUP DISTRICT.

I. THE BARDUAR RESERVE.—Notified in the *Calcutta Gazette* of 14th August, 1872, page 115, situated south of the Brahmaputra in the Barduar Mouzah, on the right bank of the Kulsi river, about thirty miles west of Gauháti.

(1.) *Area.*—Twenty square miles, or 12,800 acres.

(2.) *Boundaries.—North.*—A line along the foot of the hills skirting the paddy-fields of Niagaon, Teamaripara, Aleeha, and Chowtolla.

East.—Along the foot of the hills skirting the paddy lands of Borosolla, Ghagorachak, Gheenabari, Poojanee, and Jopongbari, up to a small feeder of the Moiranadi; down this feeder to the main stream, and along the same and the Lower Assam Company's southern boundary up to the Batanadi; thence along the path at the foot of the hills, skirting cultivation and village of Kamranga, up to the Chaka Khal, and along it and path leading to Bohotpur.

South.—Along the edge of the forest skirting the villages of Bohotpur and Rajapara; then along path up to the Kulsi Khal; and along the Kulsi Khal to the Kulsi river.

West—The Kulsi river.

(3.) *Soil.*—The greater part of it is a hill of granitic formation, reaching at the highest point an elevation of 1,351 feet. The surface soil is a sandy loam and clay, which is of sufficient depth to produce permanently a superior growth of the trees, if proper judgment is used in working it. The southern portion of it is level ground, consisting of a still more sandy loam, with a rich covering of vegetable mould on the surface.

(4.) *Description of the forest.*—The forest in this reserve consists chiefly of Sâl, but this is somewhat unequally distributed, and whilst the southern portion, the greater part of which is on level ground, contains perhaps the best Sâl forest in Assam, although over-worked, and with but few trees over four feet in girth left in it, the northern slopes of the hilly portion bear evident signs of former jhooming, and the western slopes have also been worked to excess. Mixed lower hill forest exists to some extent in the northern half of the reserve.

(5.) *Timber depôt.*—At Kukurmara, on the Kulsi river, at the crossing of the Assam Trunk Road.

(6.) *Timber markets.*—The towns of Gauháti and Goálpára are supplied, and timber traders from Sirajganj and Dacca come to Kukurmara to buy timber.

(7.) *Lines of export.*—The Bata, Kulsi, and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map of the reserve on the scale of four-inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti Forest division.

(11.) *Working plan.*—The detailed examination of the reserve, the survey, valuation, and mapping, and its division into blocks and compartments preparatory to making a working plan will be commenced, it is hoped, in the season of 1875-76.

II. THE PANTAN RESERVE.—Notified in the *Calcutta Gazette* of 14th August, 1872, page 115, situated in the Pantan and Bogai Mouzahs, on the left bank of the Kulsi river, opposite the Barduar reserve.

(1.) *Area.*—Twelve square miles, or 7,680 acres.

(2.) *Boundaries.—East.*—The Kulsi river, from the Bherbhery beel to a Khási village, which is situated nearly west of Dewalee beel, but on the opposite side of the river.

South.—Along the north bank of the Bherbhery and Lamkharpara beels, which are situated exactly at the foot of the hills; then along the bottom of the hills up to the Kulsi river, and up the Kulsi river to the junction of its feeder, the Dorun; then along the Dorun to the cultivation of U Kiam round the village, and back to the Dorun, and up the same to its feeder, the Bokoladuar nadi.

West and North-West.—Along the Bokoladuar nadi to its source at the Bura Langa Parbat; then down the Dungai Doonga (which rises in the same hill) to the village of Gangaduar; here the boundary leaves the stream, and goes along the foot of the hills, skirting the cultivation and paddy lands of Gangaduar, Jhálukbari, and Bokhorabara to the Danga Duar, then along it through two beels up to the Khasi village.

(3.) *Soil.*—The same as the Barduar reserve, except that the low and level land is more limited.

(4.) *Description of the forest.*—The trees in this forest consist almost exclusively of Sâl of very healthy and vigorous growth, and with comparatively few other kinds of trees in it. Trees above four feet in girth are scarce, but otherwise the forest is well stocked with Sâl.

(5.) *Timber depôt.*—The same as the Barduar reserve.

(6.) *Timber markets.*—The same as the Barduar reserve.

(7.) *Lines of export.*—The Kulsi and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map of the reserve on the scale of four inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti forest division.

(11.) *Working plan.*—The detailed examination of the reserve, preparatory to making a working plan, will be taken in hand after this work has been completed in the Barduar reserve.

III. The Matiakhar Reserve.—Notified in the *Calcutta Gazette* of the 30th October, 1872, page 350, situated in the Matiakhar Mouzah, on one of the outermost spurs of the Khási Hills, situated about 1½ miles west of the Barduar reserve, with the Bata nadi running between the two.

(1.) *Area.*—3·5 square miles, or 2,240 acres.

(2.) *Boundaries.*—*West.*—The Bata nadi, which runs along the foot of the hills up to the village of Pookapanpara; and along the foot of the hills, passing behind the Barduar (Lower Assam Tea Company's) bungalow, and past the village of Nokaree, up to a large beel, which lies at the foot of the Deemabeel Parbat.

North and North-East.—Up a small feeder which falls into this beel to top of Deemabeel; then down the Umthoma, to its junction with the Umsuru river.

South-East and South.—Along the foot of the hills, in the valley of the Umsuru, passing the villages of Kenapara and Bandapara up to the Bata nadi.

(3.) *Soil.*—The same as the Barduar reserve.

(4.) *Description of the forest.*—The forest in this reserve is excellent, well stocked with timber, and consists almost exclusively of Sâl; nearly all trees above five feet have, however, been worked out in former years by wood-cutters in the shape of short logs and dug-outs.

(5.) *Timber depôt.*—The same as the Barduar reserve.

(6.) *Timber markets.*—The same as the Barduar reserve.

(7.) *Lines of export.*—The same as the Barduar reserve.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map of the reserve on the scale of two miles to the inch, showing the position of the reserve, is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti forest division; and a map on a larger scale will be prepared when the detailed examination and valuation of this reserve are undertaken.

(11.) *Working plan.*—The detailed examination of the reserve, preparatory to making a working plan, will be taken in hand after this work has been completed in the Pantan reserve.

IV. The Kulsi Plantation Reserve.—Notified in the *Calcutta Gazette* of the 13th August, 1873, page 954, situated in the Pantan Mouzah, on the right bank of the Kulsi river, immediately north of the Barduar reserve.

(1.) *Area.*—5·5 square miles, or 3,520 acres.

(2.) *Boundaries.*—*West.*—A line running from the boundary-mound east of the village of Bahupur, in a north-westerly direction, to the southern extremity of the narrow beel running parallel with the river Kulsi from Bahupur to Jogeebari; and thence in a half circle east of the latter village until it joins the Hatikhonda river north of Jogeebari; thence along the right bank of the latter river up the small feeder which connects it with the Andari beel.

North.—The small feeder which connects the Hatikhonda river with the Andari beel up to the cultivation of the Boglibari village, and the southern boundary of this cultivation up to the Nia nadi.

East.—The Nia nadi from the paddy-fields of Boglibari to the paddy-fields of Balijuli; then a line round these fields and back to the Nia nadi, and up to the northern boundary of the cultivated lands of the Golia village.

South.—The northern boundary of the cultivated lands of Golia village from the Nia nadi to the Kulsi river to the boundary-mound east of the Bahupur village.

(3.) *Soil.*—The soil is a sandy loam covered with rich vegetable mould, and the substratum of the hilly portion is granitoid rock, much decomposed. There are also several beels and low-lying pieces of land inundated during the rains within the reserve.

(4.) *Description of the forest.*—About two square miles are well covered with Sâl, which it is intended to preserve, whilst the remainder will be planted with Teak, Sisu, Tun, Nahor, Sam and Rubber.

(5.) *Timber depôt.*—The same as the Barduar reserve.

(6.) *Timber markets.*—The same as the Barduar reserve.

(7.) *Lines of export.*—The same as the Barduar reserve.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map of the scale of two inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauhâti forest division.

(11.) *Working plan.*—The survey, valuation, and other detailed examination of the Sâl forest in this reserve will be undertaken simultaneously with that of the Barduar reserve; the area to be planted with Teak, mixed with Tun, Nahor and Sam, is to be carried out at the rate of twenty acres annually. Sisu is to be planted in the suitable localities at the rate of ten acres per year, and all the land not suited for timber plantations is to be planted with Rubber-trees.

V. The Jara Sal Forest Reserve.—Notified in the *Assam Gazette* of the 5th December, 1874, page 264, situated immediately at the foot of the northern slopes of the Khâsi Hills, north-west of the old Cherra Poonjee road, and about one mile east of the Matiakhar reserve.

(1.) *Area.*—1·6 square miles, or 1,040 acres.

(2.) *Boundaries.—North.*—The old district road, which runs through the Mouzahs of Moirapur, Barduar, and Pantan, from the paddy-fields of Noapara to the paddy-fields of Taganpara.

West.—The paddy-fields of Taganpara, Tanguapara, and Chali, up to the Sorku nadi.

South.—The Sorku nadi, from the cultivation of Chali to the cultivation of Moragaon, and a line due east to the Chotapani river.

East.—The Chotapani river up to the paddy-fields of Noapara, and then the edge of the paddy-fields up to the district road.

(3.) *Soil.*—Sandy loam, but a few feet higher than the neighbouring paddy-fields; stony towards the Khâsi Hills, immediately at the foot of which the reserve is situated.

(4.) *Description of the forest.*—Almost exclusively Sâl, with a few other deciduous trees scattered through it. But very few trees above five feet in girth are left in the forest, and the trees have generally been retarded in their growth by the fires annually sweeping through this forest.

(5.) *Timber depôt.*—The same as the Barduar reserve.

(6.) *Timber markets.*—The same as the Barduar reserve.

(7.) *Lines of export.*—The same as Barduar reserve.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is recorded in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauhâti forest division.

(11.) *Working plan.*—The detailed examination of this forest, preparatory to forming a working plan, will be carried out simultaneously with that of the Matiakhar reserve.

VI. The Milmillia Sal Forest Reserve.—Notified in the *Assam Gazette* of the 5th December, 1874, page 264, situated on the left bank of the Kulsi river, about one mile to the north-west of the Kulsi plantation reserve, and one-and-a-half mile south-east of the Assam Trunk Road.

(1.) *Area.*—2·1 square miles, or 1,400 acres.

(2.) *Boundaries.—North.*—The Fulguri beel from the Kulsi river to the cultivation of Khalbari.

West.—The cultivation of Khalbari up to Nosuni Hill, and the foot of Nosuni Hill up to the old district road, which goes from the Kulsi to the Grand Trunk Road.

South.—This road from Nosuni Hill to the cultivation of Patgaon, and the cultivation of Patgaon, up to the boundary of the land held by Mr. C. B. Smith; then Mr. Smith's boundary up to the Kola-apa-kharijan, and the Kola-apa-kharijan, to its junction with the Kulsi nadi.

East.—The Kulsi nadi, from the junction of the Kola-apa-kharijan to the junction of Fulguri beel.

(3.) *Soil.*—The hills are of granitic formation, with rich sandy loam on the surface; the level land is alluvial.

(4.) *Description of the forest.*—Almost exclusively Sâl, more vigorous on the hilly portion of the reserve, but fairly stocked with the exception of a few patches of grass land intervening between the forest.

(5.) *Timber depôt.*—The same as the Barduar reserve.

(6.) *Timber markets.*—The same as the Barduar reserve.

(7.) *Lines of export.*—The Kulsi and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti forest division.

(11.) *Working plan.*—The valuation of this reserve is to be undertaken as soon as this work is completed in the other reserves.

VII. The first addition to Barduar Reserve.—Notified in the *Assam Gazette* of the 5th December, 1874, page 264, is situated immediately north of the Barduar reserve, and adjoining it.

(1.) *Area.*—2·25 square miles, or 1,440 acres.

(2.) *Boundaries.—North.*—The Bagmarajan.

East.—The Bagmarajan up to the village of Dhangargaon, and the paddy-fields of Dhangargaon to the foot of the Barduar Hills, and then the foot of these hills to the village of Teamaripara. (*N.B.*)—The foot of these hills is the present boundary of the Barduar reserve.

South.—A line skirting the villages and cultivation of Teamaripara and Dalangmalang up to a small feeder of the Nia nadi.

West.—The Nia nadi, from its junction with this small feeder to its junction with the Bagmarajan.

(3.) *Soil.*—A sandy loam like the rest of the low level land of the Barduar reserve.

(4.) *Description of the forest.*—Almost exclusively Sâl of very good growth, but all young on account of the perpetual cutting of Sâl-saplings by villagers, who used them until a year or two ago for firewood and petty constructions.

(5.) *Timber depôt.*—The same as the rest of the Barduar reserve.

(6.) *Timber markets.*—The same as the rest of the Barduar reserve.

(7.) *Lines of export.*—The Kulsi and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is recorded in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti forest division.

(11.) *Working plan.*—Will be included in the working plan for the Barduar reserve.

Nowgong District.

I. The Kholahat Reserve.—Notified in the *Calcutta Gazette* of the 19th March, 1873, page 370, situated in the Khola Mouzah, immediately at the foot of the northern slopes of the Jaintiá Hills, and between these and the Assam Trunk Road, twenty-nine miles west of Nowgong, and one mile south of the Kalang river.

(1.) *Area.*—2·25 square miles, or 1,440 acres.

(2.) *Boundaries.—North.*—The northern boundary of the grants Khola (No. 46) and Amjari (No. 47)—both resumed by Government—up to the Khola Mouzah eastern boundary line.

East.—Along Khola Mouzah eastern boundary line, from the northern boundary line of Amjari grant (No. 47) to the foot of the Khási Hills.

South.—The foot of the Khási Hills and Kholahat river up to the Nowgong and Gauháti Trunk Road.

West.—Along the Trunk Road from the Kholahat river up to the northern boundary of the late Khola grant (No. 46), now resumed by Government, at the 29th milestone.

(3.) *Soil.*—Sandy loam, resting on decomposed rock, and a fair depth of vegetable mould on the surface.

(4.) *Description of the forest.*—Sâl, with a large admixture of other inferior trees and bamboos, and a small piece of grass land towards Kholahat. All mature and sound Sâl-trees have been worked out; those remaining of over four feet in girth are unfit for timber, but are left standing for the shedding of seed.

(5.) *Timber depôt.*—None at present.

(6.) *Timber market.*—All timber produced by this forest, and not required for building of bridges on the Assam Trunk Road, can be readily disposed of at Gauháti.

(7.) *Lines of export.*—Kalang river and the Brahmaputra.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti forest division.

(11.) *Working plan.*—No felling to be done until the oldest Sâl-trees are five feet in girth. The thinning out of all useless trees is the work most urgently required, which has to be done before anything else is considered.

II. THE DEBOKA RESERVE.—Notified in the *Calcutta Gazette* of the 19th March, 1873, page 370, situated in Jamuna Mukh Mouzah, at the foot of the south-eastern slopes of the Mikir Hills, and between the latter and the Jamuna river.

(1.) *Area.*—0·81 square miles, or 520 acres.

(2.) *Boundaries.—North.*—The foot of the Mikir Hills from southern boundary of the former Government reserve, No. 229, up to the Gangadasi river.

East.—The Gangadasi river, from the foot of the Mikir Hills to its junction with the Dikharu river, and the Dikharu river, from its junction with the Gangadasi to its junction with the Jamuna.

South.—The Jamuna river, from its junction with the Dikharu river to Mikirgaon, and the old survey line of the former Government reserve, No. 229, from Mikirgaon up to the Mikir Hills.

West.—Same as the northern boundary.

(3.) *Soil.*—Alluvial deposits in the neighbourhood of the Jamuna, Dikharu, and Gangadasi rivers, and ferruginous clay at the foot of the Mikir Hills, resting on granitoid rock, much decomposed.

(4.) *Description of the forest.*—Young Sâl, much intermixed with other trees. All Sâl-trees above three feet in girth, and sound, have been worked out in former years for building in the station of Nowgong.

(5.) *Timber depôt.*—None at present.

(6.) *Timber market.*—This forest is not able to produce more than will be required in the station of Nowgong, and was reserved specially for this purpose.

(7.) *Lines of export.*—The Jamuna, Kapili, and Kalang rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is recorded in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti forest division.

(11.) *Working plan.*—Protection from fire and illegal felling, besides the thinning out of useless trees, are the measures first contemplated. After the condition of the forest improves, division into blocks and compartments, and the regulating of fellings, should be undertaken.

III. THE FIRST ADDITION TO THE KHOLAHAT RESERVE.—Notified in the *Assam Gazette* of the 19th December, 1874, page 283, consists of two separate blocks at the eastern and southern extremities of the Kholahat reserve, and both adjoining the latter.

(1.) *Area.*—0·75 square miles, or 480 acres.

(2.) *Boundaries.—(Eastern tract).—East.*—A small mountain stream, being the first one west of the Baragoge grant (No. 49), from a point on it due east from the north-eastern corner of the present Kholahat reserve to the point of its exit from the Khási Hills district.

South.—The foot of the Khási Hills, from the small mountain stream forming the eastern boundary of the proposed block to the present eastern boundary of the reserve.

West.—The eastern boundary of the present Kholahat forest reserve.

North.—A straight line running due east from the north-eastern corner of the present Kholahat reserve to the small mountain stream forming the eastern boundary of the tract it is proposed to add to the present reserve.

(Southern tract).—East.—The foot of the Khási Hills, from the present Kholahat reserve to a small mountain stream immediately north-east of the cultivated lands of Mikirpara.

South.—The latter mountain steam, from its exit from the Khási Hills to the paddy-field situated east of the Gauháti and Nowgong road (31 milepost).

West.—The paddy-field situated east of the Gauháti and Nowgong road.

North.—The small mountain stream forming the southern boundary of the present Kholahat reserve.

(3.) *Soil.*—The same as the Kholahat reserve.

(4.) *Description of the forest.*—The same as the Kholahat reserve.

(5.) *Timber depôt.*—The same as the Kholahat reserve.

(6.) *Timber market.*—The same as the Kholahat reserve.

(7.) *Lines of export.*—The same as the Kholahat reserve.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of the surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and the office of the Gauháti forest division.

(11.) *Working plan.*—The same as the Kholahat reserve.

TEZPUR FOREST DIVISION.

Darrang District.

I. The Balipara Reserve.—Notified in the *Calcutta Gazette* of the 28th January, 1874, page 187, situated in the Baliparah Mouzah, on the right bank of the Bhairabi river, at the foot of the Aka Hills, and about eighteen miles north of Tezpur.

(1.) *Area.*—87·84 square miles, or 56,228 acres.

(2.) *Boundaries.—North.*—The line fixed by the British Boundary Commissioner, between the Aka Hills and British territory, from the Mansiri river to the Bhairabi river.

East.—The Bhairabi river, from the British boundary to the Miri village, and a survey line west of this village.

South.—A survey line running south-west and west from the Miri village to the Mansiri river.

West.—The Mansiri river, from the southern boundary to the British boundary.

(3.) *Soil.*—The soil is alluvial, and has everywhere vegetable mould on the surface, which latter is richest in the mixed plain and lower hill forests, and poorest in the Sâl forest and on the grass lands. In the latter two the sub-soil consists chiefly of sand, whilst on the higher land, covered with mixed plain and lower hill forests, it is a rich sandy loam or clay, with granitoid rock or gravel underneath.

(4.) *Description of the forest.*—The proportion of the different descriptions of forest in the reserve is as follows :—

Mixed plain forest	50·30	square miles.
Mixed lower hill forest	29·50	„
Sâl forest	0·9	„
Grass land	7·14	„

(5.) *Timber depôt.*—At Tezpur, on the Brahmaputra river.

(6.) *Timber markets.*—The towns of Tezpur and Gauháti.

(7.) *Lines of export.*—The Bhairabi and the Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Tezpur forest division.

(11.) *Working plan.*—A working plan for the Sâl forest is being prepared. The remainder of the forests are to be protected only, until a greater demand for the kinds of timber growing in them justifies an expenditure on improvements.

II. The Khaling Duar Reserve.—Notified in the *Calcutta Gazette* of the 28th January, 1874, page 187, is situated in the Khaling Duar, and a small portion in the Buriguma Duar, immediately at the foot of the Bhutan Hills, and between the Nonai and Bhola rivers, about twenty-eight miles north of Mangaldai.

(1.) *Area.*—9·75 square miles, or 6,242 acres.

(2.) *Boundaries.—North.*—The line fixed by the British Boundary Commissioner between the Bhutan Hills and British territory, from the Nonai or Kulsi river to the Bhola nadi.

East.—The Bhola nadi, from the British boundary to a boundary-mound marked A.

South.—A survey line running due west from the boundary-mound marked A., on the Bhola nadi, to a boundary-mound marked B., on the Nonai, or Kulsi river.

West.—The Nonai or Kulsi river, from the boundary-mound marked B. to the British boundary.

(3.) *Soil.*—The soil is alluvial, with a rich and deep vegetable mould on the surface, and, near the rivers, gravel underneath. The portion situated within the Buriguma Duars is nothing but a river bed of sand and gravel, with thin vegetable mould on the better portions.

(4.) *Description of the forest.*—All lower hill forest, except the portion in the Buriguma Duar, which is Khair forest.

(5.) *Timber depôt.*—None at present.

(6.) *Timber market.*—The forest has been reserved with a view of securing timber and charcoal for local requirements at Mangaldai, and of the tea estates in this sub-division.

(7.) *Line of export.*—The Nonai river.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of four inches to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Tezpur forest division.

(11.) *Working plan.*—There being no demand for the timber from this forest at present, since planters and others are procuring their supplies from their own estates, nothing but protection is contemplated for the present.

GOLAGHAT FOREST DIVISION.

Sibsagar District and Naga Hills Agency.

I. The Nambor Reserve.—Notified in the *Calcutta Gazette* of the 14th August, 1872, page 115, situated on the Dayang, Dhansiri, and the Daigurung rivers, about seven miles south of Golághát.

(1.) *Area.*—62·93 square-miles, or 40,275 acres.

(2.) *Boundaries.—North.*—Along the whole course of the Turajan, from its mouth to its source, and from thence a straight line across to the Daigurung river.

South.—Along the whole course of the Barhilonijan, from its exit at the foot of the Rengma Hills to its junction with the Dhansiri, and from thence along the road between Barpathar and Jamaguri.

East.—The Dayang river, from its junction with the Turajan up to the Jamagurighat.

West.—The foot of the eastern slopes of the Rengma Nága Hills, and the Daigurung river from its exit in those hills to the point where the northern boundary line cuts it.

(3.) *Soil.*—A deep ferruginous loam, resting on decomposed rock and gravel. The surface soil is a rich and deep vegetable mould.

(4.) *Description of the forest.*—Mixed lower hill forest (well stocked throughout), in which Ajhar (*Lagerstræmia reginæ*), Nahor (*Mesua ferrea*), and Sam (*Artocarpus chaplasha*), are the most valuable trees.

(5.) *Timber depôt.*—At Golághát, on the Dhansiri river.

(6.) *Timber markets.*—The districts of Sibságar and Nowgong.

(7.) *Lines of export.*—The Dhansiri and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—There is one village in the reserve, called Barhala, on the right bank of the Dhansiri river, about fourteen miles south of its junction with the Dayang river, which is surveyed and demarcated.

(9.) *Rights of surrounding population.*—The villagers of Barhala are allowed to obtain their firewood from the reserve, and timber for domestic and farming purposes is granted to them free, on application to the divisional forest officer.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Golághát forest division.

(11.) *Working plan.*—The forest contains at present more timber than is required, felling is concentrated in the northern portion of the reserve, and limited to trees of Ajhar, Nahor, and Sam, above five feet in girth. The above kinds of trees are very scattered, and the forests have been reserved as much for the sake of the soil, as for the timber now on it. It is proposed to commence at the northern limit of the reserve, in the immediate neighbourhood of the Samaguting road, thinning out the useless kinds, and sowing Nahor in a systematic manner, as far as funds granted for this purpose may permit.

Naga Hills Agency.

II. The addition to the Nambor Reserve.—Notified in the *Assam Gazette* of the 12th December, 1874, page 274, is situated immediately south of the Nambor reserve.

(1.) *Area.*—326·63 square-miles, or 209,043 acres.

(2.) *Boundaries.—North.*—The Bar Neoriajan, from the Rengma Hills to its confluence with the Dhansiri river; the latter, from its confluence with the Bar Neoriajan to the foot-path leading from the Dhansiri river opposite Barpathar to the Dayang river, opposite Jamaguri fort, which is the southern boundary of the present Nambor reserve.

South.—The foot of the Nága Hills, from the exit of the Rengmapani to the exit of the Bokajan from the hills; thence, the Bokajan, from its exit from the Nága Hills to its junction with the Dhansiri river; thence down the latter to its junction with the Hurinjan; thence up the latter stream, from its junction with the Dhansiri to its exit from the Rengma Hills.

East.—The Dayang river, from the Jamaguri fort to its junction with the Rengmapâni; thence up the latter to its exit from the Nâga Hills.

West.—The foot of the Rengma Hills, from the exit of the Hariajan to the exit of the Bar Neoriajan.

(3.) *Soil.*—The same as the Nambor reserve.

(4.) *Description of the forest.*—The same as the Nambor reserve.

(5.) *Timber depôt.*—The same as the Nambor reserve.

(6.) *Timber markets.*— The same as the Nambor reserve.

(7.) *Lines of export.*—The same as the Nambor reserve.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserve.

(9.) *Rights of surrounding population.*—No rights or privileges of the inhabitants living in the neighbourhood exist.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Golâghât forest division.

(11.) *Working plan.*—The same as the Nambor reserve.

Nowgong District.

I. The Mikir Hill Reserve.—Notified in the *Calcutta Gazette* of the 19th March, 1873, page 370, situated in the Mikir Hills, on the left bank of the Kaliani river, a tributary of the Dhansiri river, which it joins about ten miles from the Brahmaputra.

(1.) *Area.*—65 square miles, or 41,600 acres.

(2.) *Boundaries.—North.*—The Langkangtang, from its source to its junction with the Tamoijuri; the Tamoijuri, from its junction up to the ridge between the Langkangtang and the Barpung rivers; then along this ridge to a feeder of the Barpung; and this feeder from its source to its junction with the Barpung; along the Barpung from this feeder to its source; from the source of the Barpung, along the crest of the ridge between the Barpung and Bardeopani rivers; from source of Barpung up to a feeder of the Taripung.

East.—The last-named feeder, down to its junction with the Taripung, and then the Taripung to its junction with the Kaliani river.

South.—The Kaliani river, from the junction of its feeder the Taripung to the junction of its feeder the Manikjuri.

West.—The Manikjuri from its junction with the Kaliani river to its source at Saringvok Hill; then a boundary line from the source of the Manikjuri to the source of the Langkangtang.

(3.) *Soil.*—Sandy loam on granitic rock.

(4.) *Description of the forest.*—Mixed lower hill forest, in which Nahor predominates, and is the most valuable tree.

(5.) *Timber depôt.*—None at present.

(6.) *Timber markets.*—The Sibsâgar and Nowgong districts.

(7.) *Lines of export.*—The Kaliani, Dhansiri, and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—The Mikir villagers are leaving the reserve to settle outside of it.

(9.) *Rights of the surrounding population.*—The Mikir villagers, a migratory race, are allowed to remain in the forest on their old village sites and fields until they give up these, when they have to settle outside the reserve, where inferior forest land exists in great abundance.

(10.) *Maps.*—A map of the reserve on the scale of one inch to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and the office of the Golâghât forest division.

(11.) *Working plan.*—This reserve was selected with a view of preventing its destruction by jhoom cultivation, since the Mikirs had destroyed hundreds of square miles of forest in the neighbourhood. It is only to be protected now, until a greater demand for the kinds of timber growing in the reserve renders improvements necessary, when the Kaliani river must in the first instance be cleared of rocks at a place called Sapan, ten miles below the reserve, to make the floating possible.

APPENDIX III.

Rules for the better management and preservation of the Reserved Forests in the Nága Hills Territory.

PART I.

THESE rules shall be in force in those tracts of land which may be notified by the Chief Commissioner of Assam as reserved forests in the Nága Hills territory.

2. Reserved forests in the Nága Hills territory shall be subject to the authority of the Political Agent, Nága Hills, who will administer them through the executive forest officer. In professional matters, the executive forest officer shall correspond direct with the Deputy-Conservator of Forests.

3. Divisions and sections of reserved forests in the Nága Hills territory will be placed under the management of executive forest officers.

4. All officers charged with the protection and management of reserved forests in the said territory, or with the control and management of any matters to which these rules relate, will be designated "forest officers."

5. The reserved forests in the Nága Hills territory, as notified by the Chief Commissioner of Assam, shall be marked on a copy of the Topographical Survey maps of the Nága Hills territory, which shall be deposited in the office of the Political Agent, Nága Hills, and attested by his signature.

6. Within reserved forests in the Nága Hills territory, no tree shall be felled, nor shall any forest produce be removed, without general or special authority obtained from the executive forest officer in charge of such forest.

7. The boundaries of reserved forests shall be clearly marked off by substantial marks, where no natural boundaries exist. Should villages be included within them, the boundaries around the village lands must be demarcated in the same manner as the forest boundaries.

8. Whenever the Chief Commissioner of Assam may determine to make any tract a reserved forest, the privileges which villagers are to be allowed to enjoy, and any customary rights which may belong to them, in the matter of providing themselves with firewood and wood for domestic and farming purposes and otherwise, shall be distinctly defined and approved by the Chief Commissioner of Assam. It shall not be competent to any forest officer in any way to restrict or modify privileges so allowed, except with the approval of the Chief Commissioner of Assam.

9. As soon as the Chief Commissioner of Assam has decided that any tract is to be a reserved forest, a notification shall be published and issued to the villages around, describing the boundaries of the tract reserved, warning the villagers against trespass or mischief, and defining the restrictions imposed on them, and the privileges allowed to them, within such reserved forest. This notification will be issued by the Political Agent, and a copy will be sent to the forest officer for information.

10. The Political Agent may prohibit all persons from passing through a reserved forest, except by authorized roads or paths, of which a list shall be published.

PART II.

Of the use of streams, of marking-hammers, of timber in transit, and of drift timber.

11. A list of rivers, streams, and waters in the Nága Hills territory, which must be kept open for the passage of timber, will be made by the Deputy-Conservator of Forests, in conjunction with the Political Agent, and be published for general information, and it will be the duty of the Political Agent to see that these streams, rivers, or waters are not closed to traffic.

12. No timber found adrift or stranded in any river in the Nága Hills reserves, and which timber has been marked, shall be removed or disposed of, the mark on it be defaced, or it be converted or cut into pieces without the orders of the forest officer, except on an order or decree by the Political Agent of the Nága Hills.

13. All timber disposed of by the Forest Department must be stamped by the Forest Department, with such marks as the Deputy-Conservator may direct.

14. All brands or marking-hammers used in the marking of timber must be registered in the principal forest office of the forest division in which they are to be used.

15. All timber from forests outside the forest reserve, brought down the rivers Dayang, Dhansiri, and Daigurung shall be reported and stopped at the forest stations on these rivers, and such timber shall not be allowed to pass until it has been examined, and will be liable to detention if found without a pass, in the form shown in schedule A, signed by the Political Agent of the Nága Hills or any other person authorized by him to do so.

16. The Forest Department shall take possession of any drift timber found in any river or stream, or lying in the bed of any river or stream within the Nága Hill reserves as to the ownership of which there may be any doubt; and the same shall be treated as drift timber under Rules 18, 19, 20, 21, and 22, below.

17. All drift timber collected by the forest officers shall be stored at such depôts as the Deputy-Conservator of Forests may from time to time order to be established.

18. From time to time, as the collection of drift timber may render advisable, public notice, inviting claimants to the ownership of such drift timber to come forward, will be issued at the head-quarters of the Political Agent, Nága Hills, and the head-quarters of the executive forest officer in charge of the Nága Hills forest reserves. These notices shall state the number and description of logs collected.

19. Six months' notice will be given for the reception by the forest officers, by whom the notice was issued, of claims to drift timber, after which, if not claimed, the timber will be sold on behalf of Government.

20. Claims to drift timber must be sent to the forest officer by whom the notice was issued, with particulars of marks by which it may be recognized. The said forest officer will inquire into the claim. If the claim be a single one, he may, on being satisfied of its validity, release the timber after expiration of the term mentioned in the notice. If the claim be a disputed one, he should endeavour to obtain the formal consent of the claimants to his arbitrating on their claims. Where the dispute cannot be so decided, and there exists any reasonable doubt as to the rightful owner, the forest officer should retain possession of the timber until the question of ownership be decided by the Political Agent, Nága Hills, provided that, if no claims be preferred to the Political Agent, Nága Hills, within five months from the date on which the forest officer shall declare his inability to settle the dispute, the timber may be disposed of by the forest officer on account of Government.

21. Timber awarded to claimants must be redeemed by payment of any expenses which may have been incurred on account of such timber.

PART III.

Of the prevention of offences, and of punishment.

22. It shall be the duty of all forest officers to see that these rules are not violated; and, should they in any case be infringed, to arrest the offenders, and convey them without delay to the nearest magistrate or police officer in the Nága Hills territory.

23. Any person infringing any of these rules shall be liable to be punished by fine not exceeding Rs. 500, or in default of payment of such fine, by imprisonment for such term as is mentioned in the rules for the administration of the Nága Hills.

24. Any marking-hammers, or other tools or implements, boats, carts, elephants, and cattle, used in an act which constitutes an offence against these rules, and all timber that has been marked or obtained in a manner contrary to these rules, or that has not been reported and passed in accordance with these rules, whether entire or cut up, or sawn up, may be seized by an officer of the Forest Department or police officer, and such tools or implements, boats, carts, elephants, cattle, and timber may be confiscated by the orders of the Political Agent, Nága Hills.

SCHEDULE A.

Form of Pass for Timber from Forests outside the Reserves in the Nága Hills Territory.

Number.	Date.	Owner or consignee.	Place of destination.	Description of timber.	Timber marks.	Number of logs or pieces.	TOTAL.

Political Agent, Nága Hills.

GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

APPENDIX LV.

Statement showing the result of an examination of the concentric rings of thirty-two Sâl trees in the Baliqara Reserve, Darrang District, Assam.

Number of trees.	Number of concentric rings in trees measuring 18 inches in girth.			Number of concentric rings in trees measuring 3 feet in girth.			Number of concentric rings in trees measuring 4 feet 6 inches in girth.			Number of concentric rings in trees over 5 feet in girth.			Remarks.
	Heart-wood.	Sap-wood.	Total.	Heart-wood.	Sap-wood.	Total.	Heart-wood.	Sap-wood.	Total.	Heart-wood.	Sap-wood.	Total.	
1	20	18	38	44	20	64	70	17	87	102	20	122	Tree measuring 6 feet in girth.
2	20	17	37	53	16	69	65	18	83	85	25	110	" " 6 " 7 inches in girth.
3	19	17	36	40	18	58	61	23	84	....	....	....	
4	20	18	38	36	18	54	74	19	93	....	....	....	
5	18	19	37	31	20	51	80	20	100	....	....	....	
6	26	12	38	42	19	61	88	18	106	....	....	....	
7	25	11	36	50	18	68	76	17	93	....	....	....	
8	27	14	41	52	18	70	75	18	93	....	....	....	
9	25	15	40	36	20	56	70	16	86	....	....	....	
10	21	15	36	48	13	61	78	15	93	....	....	....	
Total ..	221	156	377	432	180	612	737	181	918	187	45	232	
Average ..	22	16	38	43	18	61	74	18	92	93	22	116	

Note.—The girth was measured 5 feet above the ground.

W. R. Fisher,

Assistant-Conservator of Forests, Tezpur Division.

PROGRESS REPORT

FOREST ADMINISTRATION

IN THE

PROVINCE OF ASSAM

FOR THE YEAR

1875-76.

By GUSTAV MANN,

DEPUTY-CONSERVATOR OF FORESTS, ASSAM.

SHILLONG:

PRINTED AT THE ASSAM SECRETARIAT PRESS.

1876.

No. 94 A.

FROM GUSTAV MANN, ESQ.,

Deputy-Conservator of Forests, Assam,

TO THE SECRETARY TO THE CHIEF COMMISSIONER OF ASSAM.

Dated Shillong, the 25th August, 1876.

SIR,

I HAVE the honour to submit the Progress Report of Forest Administration in Assam for the year 1875-76.

I have the honour to be,

SIR,

Your most obedient Servant,

GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN ASSAM,

For the year 1875-76.

By GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

INTRODUCTORY.

THE main statistical data of Assam, as bearing on Forest conservancy, as well as an account of the districts in this Province, were given in last Annual Forest Report. The position of the forests, and their distribution, was shown on a map submitted with the same.

Changes in the district boundaries.

2. An important change, as affecting the position of the forest reserves in the Golághát forest division, has taken place in the alteration of the boundaries of the Nowgong, Sibságar, and Nága Hills districts. This alteration was described in the Government of India, Foreign Department, Notification No. 3,386, dated the 24th December, 1875, republished in the *Assam Gazette* of January 1st, 1876, page 5. It defines the boundaries of the Nága Hills district, in supersession of the notification by His Honour the Lieutenant-Governor of Bengal, dated the 16th December, 1867.

By the above ruling, portions of the Nowgong and Sibságar districts, as shown on the maps submitted with last year's Forest Report, are transferred to the Nága Hills district; and the Mikir Hill forest reserve, formerly situated in the Nowgong district, as well as that portion of the Nambor forest reserve which was situated in the Sibságar district, are now both part of the Nága Hills district; and the statement made in paragraph 197 does no longer hold good as regards the forest reserves comprised in the Golághát forest division.

Notification of Inner Lines.

3. The Inner Lines of the Darrang, Lakhimpur, and the Cachar districts, which affect the administration of the Government forests in this Province, were settled during the year under review.

The south Inner Line of the Cachar district was described in Foreign Department Notification No. 2,299 P., dated the 20th August, 1875, and republished in the *Assam Gazette* of September 11th. 1875, page 497.

The Inner Line of the Lakhimpur district was described in Foreign Department Notification No. 2,427 P., dated the 3rd September, 1875, and republished in the *Assam Gazette* of September 25th, 1875, page 520.

The Inner Line of the Darrang district was described in Foreign Department Notification No. 631 P, dated the 8th March, 1876, and republished in the *Assam Gazette* of March 18th, 1876, page 177.

Revision of Forest Rules.

4. The Government forests in Assam, which are gazetted, under Act VII. of 1865, either as "reserves" or "open forests," are managed under the Bengal Forest Rules, sanctioned by the Supreme Government in Public Works Department Notification No. 13 F., dated the 16th February, 1871, and published in the *Calcutta Gazette* of 1st March, 1871, page 454. But a draft of revised Forest Rules for this Province was submitted by the Chief Commissioner to the Government of India in December, 1875, for sanction.

Timber-bearing lands.

5. General principles in dealing with applications for timber-bearing lands were laid down by the Chief Commissioner, and circulated for the guidance of the Deputy-Commissioners in charge of the districts in Assam Proper and Cachar.

Rules regulating timber-cutting on Government lands.

6. Tax continues to be levied on the twenty-nine trees enumerated in paragraph 84 of last year's Forest Report; but, in addition to this, the Chief Commissioner has laid down rules for the regulation of timber-cutting on Government lands in Assam Proper (except those gazetted as reserved or open forests under Act VII. of 1865, or such lands the proprietary right in which Government has alienated, fully or partially, whether temporarily or permanently). These Rules will be quoted in Section IV.—"Open Forests."

List of useful trees.

7. Additions to the list of useful trees growing in the Province of Assam, are enumerated in Appendix I. of this Report.

SECTION I.—INSPECTION OF FORESTS.

8. In the season 1868-69, the general inspection of the forests in Assam was commenced and completed during the year under review by the inspection of the forests in the Gáro Hills district.

Boundaries of the Gáro Hills district.

9. The latter comprises the most westerly portion of the range of hills situated between the Brahmaputra and Surma Valleys, and is bounded as follows:—

North and West.—The Goálpára District.
South.—The Mymensingh „
East.—The Khási and Jaintiá Hills District.

Great complications existed about these boundaries, which have all been settled by demarcation and payments of compensation to the Susung, Bijni, and Mechpara zemindars, by which the protection of some of the forests in the Gáro Hills has become much more feasible.

Topographical description.

10. The whole of the district consists of comparatively low hills, the centre, or Tura, range of which only reaches a height of 4,652 feet. The extraction of timber from the interior would be, if not impossible, very expensive, and cannot repay itself at present, even with the Sâl-timber from some of the forests existing in the centre of these hills.

Rivers.

11. There are, however, excellent waterways all around and immediately at the foot of the Gáro Hills, such as the Dodnai, Krishnai, Jinjiram, Singimari, Bagai, Nitai, and Sumasery, down which timber has been floated for many years past from forests situated ten to fifteen miles in the hills.

No timber-floating can be done in the cold season, as all the above rivers are nearly dry.

Climate.

12. The climate of the Gáro Hills is wet, like that of the rest of Assam. The rainfall during the last three years at Tura, the head-quarters of the Deputy-Commissioner in the Gáro Hills, has been the following :—

Year.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1873	0·43	0·34	3·23	9·59	5 71	24·91	17·26	13·89	10·00	0·62	....	0·45	86·43
1874	2·14	3·89	1·49	3·07	13·87	16·75	34·53	7·80	30·68	19·10	....	....	133 32
1875	1·69	0·56	0·61	5·93	20·45	31·45	20·66	28·14	0·33	0·53	....	0·15	119·50
Average....	1·42	1·59	1·77	6·19	13·34	24·37	24·15	16·61	16·67	6·75	....	0·20	113·08

Situation of forests.

13. From a revenue point of view, the most valuable forests in the Gáro Hills are the Sâl forests, covering the northern slopes immediately above the Goálpára plains. But there are, besides these, isolated Sâl forests in the interior and the southern part of the hills, which, as regards the size of the trees and the condition of the forests generally, are even better; but then, as stated above, they are so inaccessible that, at the present market-value of Sâl, the extraction of timber would not be remunerative.

14. From an economic point of view, however, the mixed lower hill forests, covering the central or highest range in the Gáro Hills, which forms the watershed between the Brahmaputra and the Surma Valleys, are the most important, since the sources of most of the mountain streams are situated on this range, and kept running by the forest growth surrounding them.

Area of forests.

15. The area of the Sâl forests worth protection in the Gáro Hills is estimated at 250 square miles, whilst that of the mixed lower hill forests on the central, or Tura, range is estimated at about 100 square miles.

Description of forests.

16. The Sâl forests, and especially those most accessible on the northern slopes, are very much intermixed with the trees which compose the mixed lower hill forests, and in many parts the Sâl-trees are very much scattered, and, comparatively speaking, exist only in small numbers. Besides this, jhoom-cultivation is carried on in most of them, and, although not that intense jhooming as practised in the western part of these hills, still the whole forest area is thereby subjected to gradual deterioration, which is all the more dangerous, as these people have been only a few years under British rule, and still look on the forest *par excellence* as their natural and legitimate means for increasing the yield from their fields, by burning and applying the ashes and charcoal as manure; and changes in this mode of cultivation by the Gáros can only be brought about very gradually and cautiously.

17. The rest of the vegetation in the Gáro Hills consists of low scrub of the trees composing the mixed lower hill forests, together with a dense growth of a small species of bamboo, which springs up promiscuously on the fields after they have been jhoomed. This latter mode of cultivation has been carried to such a pitch now in the western part of these hills, that the respective villages watch over the growth of jungle on the old jhooms so much, that they claim compensation from their neighbours, if, through any fault of theirs, fire has spread.

The timber-trade.

18. The chief timber-markets to which the timber from the Gáro Hills is taken are—

Within the Province :—

Nagorbera.	Punchrotton.
Mornai.	Lakhipur.
Maijunga.	

Beyond the Province :—

Serajgunj.	Bhyrub Bazar.
Goalundo.	Dacca.
Mymensingh.	

19. The sale of timber in the markets within the Province generally commences in October, and lasts through November and part of December.

Kinds of timber.

20. The kinds of timber removed at present are almost exclusively Sâl and Jarul. The felling of the latter kind of timber only commenced a few years back, when Sâl of large size became scarce, or was not procurable at all; and at present, for the same reason, Jarul timber, when the logs are sound and cylindrical, fetches higher prices than Sâl, because they are, as a rule, of greater girth.

Prices of timber.

21. The timber sold in the above timber-markets is of the following dimensions, and now fetches the prices given below, as compared with 1865 :—

Names of logs.	Girth.	Length.	Market value in 1865, per pair.	Market value in 1875, per pair.
Dhums	4 to 8 feet.	7 to 8 feet.	Rs. 8	Rs. 10 to 16
Gols	2 to 3 „	15 to 20 „	„ 2 to 2-8	„ 7 to 8
Dhams	1½ to 2 „	24 to 30 „	„ 1	„ 2 to 3

This is as near as the price of timber can be compared; but, not only has there been a great increase in the value of the different descriptions of logs, but they have much deteriorated in quality and size as well. On this account (the deterioration of Sâl through excessive fellings), Jarul is now much sought for.

Uses made of timber.

22. Of the above descriptions of logs, the "Dhums" are chiefly used for planks for boat-building, in fact, they are fit for little else. The other two kinds are mainly used for house-posts by the wealthier classes of natives in Bengal.

No timber for larger constructions, such as buildings in Calcutta, or bridges in this Province, is worked out from the Gáro Hills by the timber-cutters or duffadars, unless special arrangement is made before.

23. The duffadars are chiefly Meechies from the Goálpára plains, who procure money from the traders in the bazars, after making an arrangement regarding a division of the timber worked out, or of the profits derived from its sale. The Meech duffadars, again, employ coolies of their own class from the plains to work out the timber entirely by manual labour. Gáros, as a rule, do no timber work.

Revenue from timber.

24. The revenue from timber is charged at present on the log, at the rate of Rs. 2 each, after it has reached the general market, where it is sold, together with the timber brought from the estates of the Bijni and Mechpara zemindars. There is no check at present in the forests as regards the number of trees removed, or the size of the trees felled.

25. A great demand exists for bamboos from the Gáro Hills, especially in the south and west, where the people from the plains procure them from the outer hills, and pay often very high for them. There is no fixed general tax on this account for the cutting of bamboos; the Deputy-Commissioner, who collects this revenue, regulates the tax put on bamboos according to the demand there is in the different localities.

26. Before the British Government took possession of the Gáro Hills, forest revenue was realized on a great variety of produce, some of which, such as cotton, was plainly agricultural, and others, such as a tax on birds (*mainas*), so petty, that this practice was discontinued; and now forest revenue is only collected on timber, boats (dug-outs), and bamboos.

27. There is a small fee, called the "murung," paid to the lashkurs, or headmen of the Gáro communities, to appease the deities under whose particular protection large Sâl-trees are supposed to grow; but this is not recognized at present by the Deputy-Commissioner of the district.

Destruction of forests.

28. The two great dangers to which the forests in the Gáro Hills are exposed are, as everywhere else in Lower Assam, jhooming and fire. The former of these, the Deputy-Commissioner thinks, could be stopped in the more valuable Sâl forests with very little, if any, cost to the State, as

the land on which Sâl grows is, as a rule, inferior to that on which mixed forests thrive,—and there are large areas of the latter as yet not used for this cultivation; but it will require time and great caution to bring about this desirable change.

The protection of the Sâl forest against fire will be a much more difficult task; but as in some parts of these hills fire-protection is carried out with a view of protecting the vegetation on fields to be jhoomed thereafter, there is even hope for this measure succeeding better in the Gáro Hills than almost anywhere else.

29. There is no danger from fire in the mixed lower hill forests on the central range, and all that is necessary for the present to preserve this forest is its demarcation by a boundary-path, running along the base of this range, and declaring it a forest "reserve." This is a most desirable measure, for economic reasons, since the sources of most of the streams in the Gáro Hills are situated in this forest. Its conservation was initiated some years ago by the Deputy-Commissioner, who has frequently explained the reason for the maintenance of this forest to the people, and finds they appreciate this important measure. From the comparatively close proximity of the Gáro Hills to the great timber-markets of Bengal, the Sâl forests are of exceptional importance and value.

SECTION II.—RESERVES.

30. The usual tabular statement of forest reserves in the Province, attached to this Report, shows the areas added during the year under review; and a short description of these reserves, under the prescribed heads, in given in Appendix II.—"Register of Reserves."

The reserves added during the year were the following :—

In the Gauháti Division.

Second addition to the Borduar Reserve.

In the Tezpur Division.

(1.) The Bhamaraguri Hill Reserves.
(2.) The Garumari Sâl Forest.
(3.) The Charduar Rubber Plantation Reserve (east of the Diputa River).

In the Goálpára Division.

(1.) The Bijni Duar Reserve.
(2.) The Cheerang Duar Reserves.
(3.) The Ripu Duar Reserve.
(4.) The Goma Duar Reserve.

Under Civil Officers.

The Charduar Rubber Plantation Reserve (west of the Diputa River).

GAUHATI DIVISION.

31. The new reserve added during the year was demarcated, and a commencement was made in the Milmillia reserve to increase the number of boundary-mounds, and to improve them by having a strong Sâl post placed in the centre of each, on which it is intended to have current numbers for easy recognition of the particular position of each, these numbers being also entered on the map of the reserve.

Protection from fire.

32. The same efforts were made to keep the fire out of the reserves as had been done in previous years, by cutting fire-paths of fifty feet in width, and employing twenty-seven extra fire-watchers during the months of January, February, March, and April; but they were not as successful as the year before, inasmuch as one of the reserves, the "Milmillia Sâl forest," was almost entirely burned, and the fire got also into the Pantan and Kulsi plantation reserves, and burned portions of these as well. This is much to be regretted, but not attributable to any want of attention from Mr. Mein, or his subordinates either, all of whom made extreme efforts to keep out the fires, and no doubt thereby saved all that has not been burned, as exhibited in the annexed tabular statement. But the great luxuriance

with which grass grows in this Province, and the extent of it, makes fire-protection a particularly difficult task in Assam. The last cold season was an exceptionally dry one, and westerly gales, which blow with great violence, were very frequent; in consequence of which, the jungle-fires have been much more prevalent all through the Province than usual, and not only burned portions of our forests, but bungalows, villages, bazars, bridges, and so forth, in different districts. All the fires in the Gauháti division which got into the forest reserves came from outside, burning for miles, and could have been extinguished by the villagers long before they reached the reserves, if any of them had desired to do so, or probably never would have happened, if they were not so extremely reckless in letting fires spread from their fields or grazing grounds; but this, no doubt, will take years before it can be completely stopped, and is a matter of education almost entirely beyond the power of this department. The small establishments the Forest Department could employ have been very active, and in one or two instances even the people from villages adjoining the reserves have done their utmost to put out the fires; but the greater part of the forest not burned was saved by resorting, at the last moment, to the extreme measure of setting fire to the grass outside the fire-strips, and burning away from the forest. In one instance, the burning of the Milmillia Sâl forest, the wind was blowing so furiously that the burning material was blown across the Kulsi River, a distance of over 200 yards, and set fire to the grass there. With the exception of lighting fires very carelessly, and allowing them to spread, the surrounding villagers have given very little trouble; for it so happened that early in the year one of them was trying to induce men to cut down trees, in spite of the frequent warnings given by the forest establishments; and, when finding that he could not induce anybody else to do so, set to work and did it himself, in defiance of the watchers, and carried some of it away. This man was prosecuted before the Magistrate and punished, since when there has been no more trespass. This was the only case tried during the year in the Gauháti division.

TEZPUR DIVISION.

33. In the Darrang district, the reserves have been increased by an area of 80·92 square miles, of which 34·46 were placed under the officer in charge of the Tezpur forest division, and the remainder under the Deputy-Commissioner of the Darrang district, subject to inspection by Forest officers.

The reserves placed in charge of the Forest Department were the following:—

The Bhamaraguri Hill Reserve.
The Garumari Sâl Forest.
The Charduar Rubber Plantation Reserve (east of the Diputa River).

34. The first of these is a small hill, situated on the north bank of the Brahmaputra, about four miles above the station of Tezpur. It was first sold as waste land for a tea-plantation, and repurchased in 1867, with a view of securing the site and supplying firewood for the Government steamers, and now, during the year under review, declared a forest reserve under Act VII. of 1865. The forest covers 986·7 acres, and is very poor mixed plain forest, and not worth improving, since superior forests, measuring about 162 square miles, have been selected as reserves on both sides of the Bhairabi River, about twenty miles north of Tezpur, from where any amount of firewood can be procured.

35. The Garumari reserve is a valuable little forest of pure Sâl, situated about seven miles north of Tezpur, and one mile east of the Balipara road, and measuring about fifty acres, which, although young and much damaged by fire in former years, will become a most valuable property, as Sâl is so very scarce in this district, and not to be had at all anywhere higher up the Brahmaputra. In addition to the Sâl forest itself, 155·18 acres of grass land surrounding the former have been included in the reserve, since it has been ascertained that Sâl does spread naturally, if protected against fire.

36. The Charduar Rubber plantation reserve was also sanctioned during the year by the Chief Commissioner, and is the land on which the main Rubber plantation in Assam has been started. It is covered with dense mixed evergreen or lower hill forest, through which only lines are cut for the planting of the Rubber-plants, whilst the rest of the trees are preserved for timber. The total area of this reserve is about 80 square miles, 33½ of which are situated east of the Diputa River, and have, as stated above, been placed under the direct management of the Forest Department.

Protection from fire.

37. The protection against fire of all the Sâl forests in this division was managed by the cutting of fire-strips around all, and the employment of three extra fire-watchers. Different attempts were made to set fire to these forests, which it is suspected was done by a dismissed forester, and villagers whose cattle had been prohibited from entering the reserves. But, although investigations were made by the police, the evidence was not considered such as to punish the offenders. Fortunately, the watchers kept a sharp look-out, so that the fires were soon extinguished after they had been lighted, and the damage done was very trifling,—not more than five acres, out of a total of 631½, were burned.

Reboisement of Sâl forest.

38. The small experiment of reboisement made with Sâl seedlings in the Balipara reserve was perfectly successful, and the planting of saplings six to eight years old succeeded even better. It is not intended, however, to go on with this, since planting in this Province is expensive, and these Sâl forests, beyond all doubt, will spread naturally, if only the fires are kept out; so that all funds available will be better spent in Sâl forests on fire-protection than planting.

Survey and demarcation.

39. Two more patches of Sâl in the Balipara reserve, measuring, in the aggregate, 6·71 acres, were surveyed and mapped.

40. All the new reserves were demarcated by boundary-mounds of the prescribed size,—five feet in height and ten feet in diameter at the base,—and the old boundary-mounds have been repaired and the boundary-lines cleared. The Nowduar reserve continues to be managed and protected by the Forest Department, but has not as yet been brought on the register of reserves, as the boundary between the Akha Hills and the Darrang district was not settled in time to get it gazetted during the year under review; but proposals to have this done were again submitted for the consideration of the Chief Commissioner.

Cutting of creepers.

41. All the creepers were cut in Block A of the Balipara Sâl forest, over an area of 575 acres, as well as useless trees, where they were not required to make the cover complete.

GOLAGHAT DIVISION.

42. As explained in the first section of this Report, all the forest reserves in this division are now situated within the Nága Hills district. This is in every respect a great advantage, as it simplifies greatly the management of them; the divisional officer having only to correspond and consult with one district officer, under whose orders he also stands, as regards the southern part of the Nambor reserve, situated nearest the Nága Hills.

Protection of forests.

43. The divisional officer kept up an effectual control on the three rivers by which only forest produce is removed, and carried out the ordinary protection of these forests by almost constantly moving about and inspecting the different localities, and ensuring thereby the activity of his subordinates as well. The forests in the Golághát division are all lower hill forests, and there is, on this account, no danger from fire; whilst, on the other hand, the danger of the surrounding hill tribes descending into these forests and making large clearances, which would not take them longer than a week or fortnight, perhaps, is greater here than anywhere else, and can only be prevented by the most active watching over them; for, although the neighbouring villagers have frequently been told that it is strictly prohibited, the temptation of these luxuriant, almost virgin, forests, and the fine crops the land does give if the forest is cut down and burned, proves too great a temptation if they are not closely watched. An instance of this occurred in this division, which showed this danger plainly: The divisional Forest officer having fallen seriously ill, and been obliged to take sick leave, and the death of the Political Agent of the Nága Hills occurring about the same time, advantage was taken of these accidents, and cultivation commenced within the reserve, which was fortunately discovered very soon, and the mouzahdar brought to account, and the clearing stopped. The Sub-Assistant-Conservator in charge ascended all the boundary-streams by boat, inspected all the boundary-lines of the Nambor reserves, and traversed the different blocks of the forest to ensure its proper protection; and, after he had left, the Forest-ranger visited the Rengmah Hills for the same purpose. The last of the villages existing in the Mikir Hill reserve changed the site of its cultivation during the year under review, and settled outside the reserve, where no harm is done, and the services of the people are available for works to be carried out by the department.

44. During the year, three cases of forest-trespass were tried in the Golághát division, in which seven persons were concerned and convicted.

Improvement of forests.

45. The intended experiment of sowing Nahor (*Mesua ferrea*) in the Nambor reserve could not be carried out, since the seed of this species was not procurable in the year under review, the trees having borne scarcely any in this part of the Province.

GOALPARA DIVISION.

46. The proposals to have the Government open forests in the Bijni, Cherang, Ripu, and Goma Duars of the Goálpára district declared forest reserves under Act VII. of 1865, were sanctioned by the Chief Commissioner during the year, and they are now as strictly protected as the very limited establishments permit, which, although not as effective as they should be, can do very much more now that these forests are "reserves" than was possible as long as they remained open forests.

They were gazetted in November, 1875. Their boundaries, area, and a general description, are given in the register of reserves, Appendix II., attached to this report.

The total area of reserves in the Eastern Duars, Goálpára district, gazetted up to the end of 1875-76, is 348 square miles.

Delay in the introduction of strict conservancy.

47. These forests were first inspected and reported on in 1868, and proposals regarding their management submitted by the Conservator of Forests to the Government of Bengal. These proposals were approved generally by the Government of India, and afterwards by the Secretary of State.

The papers above referred to are printed in a selection of despatches to and from the Secretary of State for India, regarding Forest Conservancy in India, laid before the House of Commons, page 916 to 923.

48. They, however, remained almost without protection until 1872, when they were declared open forests under Act VII. of 1865 and the Bengal Forest Rules of 1871. The natural consequence of no stricter conservancy measures having been introduced sooner has been the annual burning of the forests by woodcutters and villagers, and increased jhooming in many parts; until Colonel Keatinge, during the year under review, recognised the urgent necessity for having these forests, which are the most valuable in Assam, made exclusively State forests, and to conserve them strictly.

Timber in the forests.

49. Nearly all the mature timber was felled in the Sâl forests before the Duars were taken possession of by Government from the Bhutias, and there are now but a few scattered trees left, measuring over five feet in girth. With Sam (*Artocarpus Chaplasha*) and Tita Champa (*Michelia Champaca*), in the lower hill forests, which are, next to Sâl, the most valuable kinds growing in the Eastern Duars, it is not much better. Still, even the scanty protection given to these forests since they were first inspected, in 1868, has told on them, and is at once perceptible, when they are compared with the private forests on the permanently-settled lands.

There are, however, considerable quantities of dead Sâl-wood of small dimensions in these forests, which are being worked out now by the wood-cutters or duffadars on permits under the control of the Forest Department.

Private forests.

50. Mr. Fisher, the Assistant-Conservator in charge, not being aware of the proposals made in 1869 to lease the Purbutjhar forests from the zemindar, which were also recorded in the above-quoted despatches, has again drawn attention to the latter forests: and, although they would even now be worth exchanging for other waste lands, they are a mere wreck of what they were in 1868.

Boundaries of the forests.

51. The reserves in the Eastern Duars were surveyed and demarcated, and mapped by the Revenue Survey in 1869; but, as this demarcation is insufficient for proper forest management, the boundary-mounds will be increased and renewed next cold season. The survey made by the Revenue Survey,

as a matter of course, shows no detail regarding the different descriptions of forests; and a survey to obtain this information will be made now by this department as expeditiously as possible.

Survey.

52. A very good beginning in this work has been made during the last season by Messrs. Fisher and D'Arcy in the Sidli Duar, where 15,716 acres were surveyed and divided into blocks, compartments, and sub-compartments, which, besides being the first step to organizing these forests, will be of immediate advantage, as it facilitates the control over the removal of the dead timber from these forests, and renders the fire-protection, as well as the general management of them at once more practicable.

Demarcation and mapping.

53. Demarcation, in a substantial manner, of the boundaries of this forest and the village lands within it, has been carried out at the same time, and a map been prepared by these two officers on a scale of four inches to the mile,—copy of which, on the reduced scale of one inch to the mile, is appended to this report.

Area.

54. An area statement of the compartments has been entered on the map. The area of the sub-compartments is approximately shown on the map by different colours only, and not in the area statement, since the actual survey of all the lines of the sub-compartments is a work of much time and expenditure, which cannot be afforded, at any rate not until this general survey of all the reserves has been completed, and the utility of which, for the present at least, is doubtful, considering the condition of the forests, and that the outlines of the sub-compartments will not be permanent ones. The areas of the different descriptions of forest have been calculated from the surveys made by this department, along the lines dividing the forest into compartments; and the areas of the village lands have been calculated from actual surveys made by this department, and the Revenue Survey maps on the scale of four inches to the mile, which are recorded in the office of the Deputy-Commissioner of the district.

Valuations.

55. In two blocks out of the three surveyed this season, valuations of the growing material were made in the most careful manner along all the lines dividing these forests into compartments, and extended over 835 acres, or 5·31 per cent. of the total area. These valuation surveys are recorded in Appendix III. of this report, and show the number of Sâl-trees, exclusive of saplings, under one cubit, on a hundred acres to be as follows, if only the area of Sâl forests is taken:—

Second-class trees	4,428
Third-class „	603
Fourth-class „	23

If both lower hill forests and grass-lands are included, the number of Sâl-trees above one cubit in girth on a hundred acres is as follows:—

Second-class trees	2,896
Third-class „	394
Fourth-class „	15

56. The procedure followed in making the valuation surveys was that the lines dividing the forest into compartments were first cut one mile apart; these lines were chained, and a strip of forest, two chains in width, was then first marked off, and afterwards all the trees of different sizes met on this strip counted. The area of each description of forest and grass-land, as met with on these lines, was registered at once.

Age of trees.

57. In addition to this, Mr. Fisher has also counted the concentric rings in twenty Sâl-trees in these forests, which countings are shown in Appendix IV. It is intended to continue this survey work in a systematic manner over all the reserves, as funds are granted for the purpose. It is a most important and necessary work to remove these valuable forests beyond any further risk of alienation, or even deterioration, and is preparatory to compiling a preliminary working plan for them.

The above work was commenced in the Sidli Duar forests, as the village lands south and east of them had first to be surveyed and demarcated, before the forests could be gazetted as reserves, and it was most desirable that no further delay should occur in having this done.

Fire-protection.

58. The fire-protection will be exceptionally difficult in the Eastern Duars, since there are enormous areas of land surrounding our forests, on which the grass grows to a height of 6 to 10 feet and more, and, if once alight, it will be very difficult to put out. The fires originate at present in the forests chiefly with the woodcutters, who set fire to the grass to enable them to find and remove the dead timber. This can be prevented by an insertion in the permit of severe penalties, and by imposing them regularly, and not letting them remain a dead-letter only.

Different it is in cases where fire is set to the dried jungle on newly-cleared fields by villagers, and allowed to spread; or where this is done in the neighbourhood of villages or village roads by the people, in which case it will require time, and patient teaching of the villagers by Forest and Civil officers, which will be of more effect than all the fire-strips this department can make. This object cannot be attained in a year, or several years: but the sooner a beginning is made, the better and the earlier shall we see the people understand it.

The hunters, who go out in parties of ten to twenty and more, also set fire in the most reckless manner to everything that is in their way to get at the game. This, it is also believed, can be easily stopped; or rather it can be insisted upon that the hunters prevent the spreading of such fires, if the civil authorities give their earnest support to such measures.

Fire-protection will not only be difficult, but also expensive, in the Eastern Duars. But as this is, besides the survey, demarcation, and organization of the forests, almost the only expensive measure contemplated for years to come, there is hope that funds for this purpose will also be granted by the Supreme Government.

Buildings.

59. In the Goálpára division, as in all others in Assam, fevers are prevalent at some seasons of the year, and distances are great, and tents more or less unsuited for travelling, and too expensive to be used for the subordinate staff; for which reasons, small inspection-huts for the divisional officer, and still cheaper ones for the subordinate establishments, have been erected in central localities in or near the forests at Patgaon, Gosaingaon, and Garubasa, but the latter one was not completed. In addition to these, one at Balatong and one at the Bijni reserve will be constructed during the coming season.

CACHAR DIVISION.

60. The proposals submitted to the Chief Commissioner, to have an area of 825 square miles of forest in the Cachar district declared forest reserves, were sanctioned, and description of boundaries submitted to the Deputy-Commissioner for verification. The same sanction could not be conferred by the Chief Commissioner regarding the forests in the Sylhet district, as the claims of the merishdars on these forests are still under investigation. On the proposals regarding the reserves in the Cachar division, as detailed in paragraphs 216 to 246 of last year's Annual Report, the Chief Commissioner issued, in March, 1876, the following orders:—

"The present system of granting permits for the felling of timber must remain in force, with such modifications as shall give the Forest Department the greatest possible power of control and supervision.

"For political and fiscal considerations, the Forest officer in charge of the tract bordering on the Lushai country, in which tract there are several tea-gardens, shall for the present be placed under the orders of the Deputy-Commissioner in all but technical matters.

"The reasons given for the conservancy of such forests as exist in Cachar and Sylhet appear to be unanswerable, and the reserving of the tracts proposed under Act VII. of 1865, are sanctioned. They will accordingly be gazetted, and the particulars of area, and other information, for this purpose, should be submitted as soon as possible.

"An Assistant-Conservator should be placed in charge of these forests, with his head-quarters at Silchar; and he should employ himself at first in studying the position and boundaries, and other particulars of his charge; and, in addition to his other work, be placed in charge of the collection of tolls on timber brought down the different rivers.

"Colonel Keatinge is not prepared to accept the proposal to establish a toll-ghat at Sonai Mukh as well as at Sealtek. If a toll were levied at Sonai Mukh, it might be necessary, as suggested, to exempt, partially or entirely, the timber exported from Manipur, and this exemption would in all probability give rise to many frauds. But, if Manipur timber is allowed an untaxed entrance into our territory, and an untaxed sale throughout the extensive district of Cachar, there can be no just cause for complaint, if, after a free passage of eighty miles from the Manipur boundary, it is taxed at Sealtek at the same rate as timber cut in British forests.

"The proposed rates of duty on timber, *viz.*, four annas per cubic foot of timber of the kinds marginally noted, and two annas per cubic foot of all other woods in the log, with an addition of 25 per cent. in the case of converted timber, are accepted. Tables of rates on logs of various sizes must, as suggested, be kept at the toll-station and at the Forest office for distribution.

Jarul.	Champa.
Nagessur.	Sill Kurta.
Cham.	Dollu Kurta.
Kuthál.	Poma.

"The Chief Commissioner does not concur with the proposition to partially exempt Manipur timber from duty.

"Timber felled in private forests should continue to pass free, and the rate on bamboos, canes, and thatching-grass should be as marginally noted, and on charcoal two annas per maund. The rate on charcoal can, as suggested, be either levied at the toll-station, or at the time of application for a pass to remove it by land. The forest officers should be careful to restrict the felling of trees for charcoal to inferior descriptions of wood.

	Rs.	As.	P.
Bamboos, per 1,000	1	4	0
Canes (jail and sundi), 100 bundles of seventy-six pieces each	1	8	0
Canes (gufia), ditto ditto	2	0	0
Grass, each raft	2	8	0

"A fee of Re. 1 from each woodcutter, on his permit to cut timber, bamboos, and cane for six months, will be levied, the names and other particulars of the permit-holders will be registered in a bound book in the Forest office. These permits should be for the half-year ending 30th June and 31st December only.

"The registration of elephants, as proposed, may be carried out as a necessary part of the system of getting all felling operations under control; but the fees levied must be merely nominal, *viz.*, Re. 1 per elephant per annum. The particulars of each elephant, and of its owner, should, as suggested, be kept in a bound register. Infringement of any condition of the permit or license would render a woodcutter or elephant-employer liable to punishment under the Forest Act.

"No woodcutters should be permitted to proceed beyond the 'Inner Line' without the sanction of the Deputy-Commissioner of the district."

Commencement of forest work.

61. In accordance with these orders, the officer in charge of the Cachar division, who only returned from Europe in February, 1876, has made himself, in the first instance, acquainted with the forests in his charge, and their boundaries, and took charge of the toll-collections at Sealtek ghât on the 1st of April, 1876. More could not be done before the end of the financial year, but fair progress has since then been made by Mr. Shakespear in organizing the new system.

Reserves under Civil Officers.

62. The only reserve forests in this Province as yet under the sole management of a district officer is the Charduar Rubber plantation reserve (west of the Diphta River), consisting of lower hill forest situated immediately at the foot of the Akha Hills, which was declared a reserve to have ample forest land secured for extension of Caoutchouc plantations.

The Deputy-Conservator of Forests, or one of his Assistants, will once in the year inspect this forest, and report to the Chief Commissioner and the Deputy-Commissioner of the Darrang district.

SECTION III.—PLANTATIONS.

63. Plantations, like all other works in Assam, are, comparatively speaking, very expensive; and, since the areas already planted with exotic timber-trees, especially Teak, are sufficient to judge the suitability of the soil and climate of Assam for their cultivation by the Chief Commissioner does not consider it desirable to extend these timber-plantations of exotic trees, especially since the forest revenue is not large, and cannot be materially increased for years to come.

64. All the funds available are, in accordance with these orders, employed for the improvement of the natural forests, and, where necessary, the sowing and planting of indigenous trees. The experimental Teak plantation at Makum, which is simply protected, and not extended, has been made over to the charge of the Deputy-Commissioner of the Lakhimpur district. The Deputy-Conservator inspects this plantation once a year. The

Nungkhlao Cinchona plantations in the Khási Hills were placed during the year in charge of the Seim of Nungkhlao, who is now responsible for keeping the plantations free from fire and jungle. The Caoutchouc plantations at the Charduar, in the Tezpur forest division, are being extended as rapidly as funds granted for this work will permit. The usual tabular statement, showing the areas of plantations and the expenditure on them, is attached to this report.

GAUHATI DIVISION.

Caoutchouc Plantation.

65. The method of planting *Ficus elastica* at the Kulsi was described in last Annual Forest Report.

This plantation has been extended during the year under review by thirty acres. The fencing in of the trees became necessary, since the deer had found out the plants, and were very much after them, which has increased the expenditure slightly.

The plantation was inspected by the Deputy-Conservator in December, 1875, and the countings made showed the following results:—

Total number of planting-spots examined	1,494	
Number of plants alive	1,292	
„ failures	202	
Percentage of plants alive	87	100
„ failures	13	

All vacancies in the older plantations were filled up.

A nursery for cuttings, to fill up vacancies in the thirty-acres extension of 1875-76, was also prepared and stocked.

The total expenditure during the year at the Kulsi on the planting of Caoutchouc-trees was as follows :—

	Rs.	A.	P.
Formation	236	7	9
Protection from fire	19	0	0
Improvement and conservation	26	2	0
Fencing	230	15	0
Total ...	512	8	9

(2.) Timber Plantations.

66. The Teak plantations were extended by twenty acres during the year, which was done by preparing planting-spots 4 ft. by 4 ft., and putting out the Teak-seed direct at the stakes. This extension was made on the same hills where the plantation of 1874-75 is situated, and is the continuation of it. The seed did not germinate very well, and the young seedlings were attacked by grubs, and bitten off in large numbers just above the ground, so that the vacancies were very numerous in December, 1875, when the following countings were made by the Deputy-Conservator:—

Teak plantations.

Total number of planting-spots examined	342	
Number of plants alive	84	
„ failures	258	
Percentage of plants alive	24	100
„ failures	76	

Since the beginning of the rains, however, many of these young bitten-off plants have sprung up again from the roots, and the vacancies are reported by Mr. Mein not to be more than 50 per cent., which are being filled up now.

The countings in the Teak plantation of 1874-75 gave the following results :—

Total number of planting-spots examined	1,086	
Number of plants alive	841	
„ failures	245	
Percentage of plants alive	77	100
„ failures	23	

Here, also, all the vacancies were filled up after the commencement of the rains. The growth of the trees is excellent, but somewhat irregular in height, on account of the seed received from Burmah in 1874-75 having been so bad; this irregularity will, however, disappear in a year or two.

The growth of the trees in the plantations of 1872-73 and 1873-74 is equally good, and the ground well covered; there are a considerable number of them attacked by the borer, but the places injured are growing over well, and do not seem to prevent, at the Kulsi plantation at least, the trees increasing rapidly in size. The measurements of fifty trees in the above two plantations gave the following results :—

Plantation of 1872-73.

Average height, 21·2 feet.
Average girth, measured one foot above the ground, 10·1 inches.

Six out of the fifty trees measured were thirty feet in height.

Plantation of 1873-74.

Average height, 16·1 feet.
Average girth, measured one foot above the ground 8·2 inches.

In this plantation, the trees do not stand quite so regular, nor are they of such uniform height, but they are healthy and vigorous.

Any vacancies which occur in the Teak plantations are filled up with Poma (*Cedrela Toona*), Nahor (*Mesua-ferrea*), and Sisu (*Dalbergia Sissoo*).

The expenditure during the year on Teak plantations has been—

	Rs.	A.	P.
Formation	975	9	3
Protection from fire...	61	15	0
Improvement and conservation	323	4	3
Total ...	1,360	12	6

Sisu plantation.

67. No extension of the Sisu plantation has been made during the year; and it is not intended to make any more, since there remains no doubt that Sisu will grow first rate at the Kulsi. But plantations are expensive, and we have now in the Eastern Duars of the Goálpára district natural Sisu forests, the improvement of which, by efficient protection against fire, is of greater moment, and less expensive, than the planting of Sisu at the Kulsi.

The countings made in the existing Sisu plantation by the Deputy-Conservator in December, 1875, gave the following results :—

Total number of planting-spots examined	698	
Number of plants alive	456	
„ failures	242	
Percentage of plants alive	65	100
„ failures	35	

These vacancies are owing to floods, and seedlings having been planted too young, as stated already in last year's report; but the latter are all being filled up now.

The expenditure on Sisu during the year has been as follows :—

	Rs.	A.	P.
Formation (nurseries)	18	10	0
Improvement and conservation	55	7	9
Total ...	74	1	9

TEZPUR DIVISION.

Charduar Caoutchouc plantation.

68. The main Caoutchouc plantation in Assam, situated in the Charduar, was described in full detail in last year's report; and the modes of propagating and planting, as then followed, remains the same now.

Propagation is carried on by means of cuttings and seed sown on beds covered with charcoal, and, whilst the cuttings make at once larger plants, and grow during the first year or two faster, the seedlings are hardier, and stand the transplanting better than the cuttings.

The area extended during the year under review was 140 acres, which were planted at distances of 25 feet in the lines, the latter being 100 feet from each other, measured from centre to centre of the lines.

Weeding necessary.

69. It was found during the year that the widening of the lines from 20 to 40 feet encouraged the growth of the weeds as well as that of the young Rubber-trees; and the necessity for cutting the jungle around the plants and on the inspection-paths twice has somewhat increased the expenditure,—but the estimated cost of Rs. 10 per acre, it is still believed, will cover all expenses.

Methods and time of planting in the ground.

70. Of the different methods of planting the Caoutchouc-trees, that of planting in the ground on small mounds of earth about three feet in height has up to the present answered best.

As far as last year's experience goes, the best time of transplanting seems to be November and December, just before the winter rains, which last about a week or a fortnight. But on this point more experience is necessary before the time of year best suited for transplanting can be positively fixed, and which no doubt will vary according to the country in which *Ficus elastica* is planted.

Well-rooted plants have a much better chance of succeeding than plants with short roots, which latter, as a rule are very brittle; this, of course, only applies to cuttings, and not to seedlings.

Planting on trees.

71. The planting in strong cane baskets, which were placed in the forks of trees, as described in paragraph 286 of last Annual Report, so far succeeded that the trees all lived; but they either remained stationary, or made one or two leaves only, which is attributed to the want of moisture in the soil put into these baskets, and also to the shade from above, which latter cannot be removed, or there would be no moisture at all kept in the soil about the roots of the young plant.

Although this mode of planting may eventually succeed, as far as the experiment has gone now, it does not look very hopeful, since it would never do to have plants remaining stationary, or nearly so, for five to ten years; and; for this reason, it is not intended to extend this mode of planting until a more accurate opinion can be formed regarding the rate of growth. The experience will be obtained from the plants already planted out in this way.

Inspection of plantation.

72. In December, 1875, the whole plantation was carefully inspected by the Deputy-Conservator, and the young trees looked all that could be wished, many of them having grown most vigorously. The countings made showed the following results:—

Total number of planting spots examined	...	...	...	...	4,539
Number of plants alive	...	...	...	...	4,122
Ditto failures	...	...	...	...	417
Percentage of plants alive	...	...	...	93	100
Ditto failures	...	...	...	7	

The vacancies were all filled up after the inspection had been made.

Fencing necessary.

73. Substantial fencing of the young trees has here, as in the Kulsi plantation, become necessary.

Bamuni Hill Caoutchouc plantation.

74. In the small Caoutchouc plantation on the Bamuni Hill near Tezpur, the growth had been very slow, although the plants looked healthy when inspected in December, 1875, by the Deputy-Conservator.

The countings made showed the following results:—

Total number of planting spots examined...		706
Number of plants alive		640
Ditto failures		66
Percentage of plants alive	90	100
Ditto failures	10	

75. Fire-strips of over 50 feet in width were cleared around this plantation; but the fires, which were so prevalent this year everywhere, got into it, and burned most of the plants. They have nearly all made new shoots, and but few were killed, because the planting-spots were cleared around the plants as well; still this is a great danger to which plantations in grass-land are exposed. The vacancies existing in this plantation will be filled up next cold season.

Cost of Caoutchouc plantations.

76. The expenditure on Caoutchouc-planting in the Tezpur division during the year has been—

Charduar Plantation.

	Rs.	As.	P.
Formation	2,575	13	3
Protection from fire	2	8	0
Improvement and conservation	709	8	0
Fencing and enclosing	5	8	0
Total ...	3,293	5	3

Bamuni Hill Plantation.

	Rs.	As.	P.
Formation	110	14	0
Protection from fire	15	6	0
Improvement and conservation	68	10	0
Fencing and enclosing	23	0	0
Total ...	217	14	0

Yield of different varieties.

77. Inquiries into the difference of yield from the two varieties, the Bogi Bur and the Shika Bur, have again been made,—and it has now been stated that the Shika Bur is the best variety of the two. However, not much reliance can be placed on these statements; and, as already reported last year, the difference, if any, is not such as to make it advisable to give preference to either in making Caoutchouc plantations:—

Plantations under Civil Officers.

78. As already stated above, the experimental Teak plantation at Makum, measuring 4 acres, was made over to the charge of the Deputy-Commissioner of Lakhimpur, who manages it through the mouzahdar living on the spot. No extensions were made, and the pay of a watcher, on Rs. 7 a month, and Rs. 13-6-3 for weeding, was the only expenditure incurred on this plantation. It was inspected in January, 1876, by the Deputy-Conservator, and measurements made were as follow:—

Teak of 1869.

Average height per tree, 31·6 feet.
Average girth, measured one foot above the ground, 16·1 inches.

Teak of 1871.

Average height per tree, 26·6 feet.
Average girth, measured one foot above the ground, 11·1 inches.

Teak of 1872.

Average height per tree, 18·4 feet.
Average girth, measured one foot above the ground, 8·7 inches.

These measurements show that there is but a slight increase in the height of the trees, as compared with the measurements of the year before, which must, however, be expected, as young Teak-trees always grow exceptionally fast at first. The trees look otherwise healthy, and very vigorous, the only drawback being the borers, which have in 1875 been again more numerous and more destructive than usual in this plantation.

Shillong plantation.

79. The timber plantation lands near Shillong, leased in perpetuity at Rs. 50 per annum, payable in advance, since 1871-72, were surveyed by Mr. Fisher during the year, and found to be only 262·59 acres, instead of 580 acres, as originally supposed. The above rent is paid by the Forest Department.

Of the exotic trees tried on this plantation, only the following three kinds can be said to have done well :—

Juglans regia.
Eucalyptus rostrata.
Pinus maritima.

All the rest either suffered from frost in the winter, or required far more nursing than can be afforded them in forest plantations, where it has always to be kept in view that only the very simplest modes of planting have any chance of proving remunerative. The young trees of the indigenous Oak (*Quercus serrata*) were also attacked by rats, who bit off great numbers of the young trees just above the ground, and are still doing so, without any remedy having proved efficacious.

Sowings of *Pinus Kasya* have been made over an area of about 20 acres on the plantation lands, and look promising.

The Spanish-chestnuts did not thrive at the timber plantation, so were transferred to the Shillong farm for trial at a higher elevation.

80. Besides this, there are different patches of forests also leased in perpetuity at an annual rent, amounting in the aggregate to Rs. 375, payable in advance, the area of which has been estimated at about 796 acres, which are looked after by the Forest Department; but the rent is paid from Town Improvement Funds. The greater part of this land was secured by order of the Chief Commissioner, with a view of securing a permanent and better water-supply for the station of Shillong.

81. All the fields which had been cultivated by the Khásias within the above areas, and measuring about 80 acres, were sown by the Forest Department with *Pinus Kasya* and *Quercus Griffithii*, *Quercus serrata*, and *Quercus fenestrata*, which succeeded well; also, 8 acres were planted with different species of *Eucalyptus*.

82. The total expenditure on the Shillong timber plantation, and the different sowings made on the above lands, during the year has been:—

	Rs.	A.	P.
Shillong Timber Plantation.			
Formation	318	1	6
Protection from fire	24	8	0
Nongkhlao Cinchona Plantation.			
Improvement and conservation	352	0	0
Other Lands.			
Formation	636	3	0
Protection from fire	49	0	0
Improvement and conservation	45	6	6
Total ...	1,425	3	0

83. Orders were also issued by the Chief Commissioner to all Deputy-Commissioners to plant small areas, not exceeding one acre, within their stations, and exposed to the public view, for experiments regarding the rapidity of growth of different kinds of wood, which might be worth planting for the manufacture of charcoal.

SECTION IV.—OPEN FORESTS.

84. As already stated in Section I. of this report, the greater number of the forests in the Eastern Duars, Goálpára district, which had formerly been gazetted under Act VII. of 1865 as open forests, have now been declared reserves; the only exception being the Sidli forest, a portion of which was surveyed; and proposals to have this also declared a reserve will shortly be submitted to the Chief Commissioner for sanction.

Forests under district officers.

85. The very extensive forests administered by district officers within revenue limits, and estimated to cover an area of 3,409 square miles, although not gazetted as open forests under the Forest Act, are in every respect managed as such, and watched over as strictly as if they had been so gazetted. This is done by the mouzahdars, who are directly responsible for their safety, and each district officer has a forest-ranger and peons under him, who are employed in collecting any information regarding these forests, and the way in which they are managed by the mouzahdars, whenever it is desired by the district officer or his assistants.

86. The following are the rules laid down by the Chief Commissioner for the regulation of fellings of the twenty-nine kinds of timber quoted in paragraph 84 of last year's Forest Report, in the forests under the Deputy-Commissioners:—

"The felling of tax-paying timber otherwise than under these rules is forbidden.

"Any person desirous of felling any tax-paying timber shall apply to the Deputy-Commissioner, or the officer in charge of the sub-division, on unstamped paper in the Form A., given below, and shall at the same time tender the tax on the timber at the prescribed rate.

"If there is no objection to the felling of the timber applied for, the Deputy-Commissioner or sub-divisional officer shall receive the tax, and enter the particulars of the application on a register, which he shall keep in the said Form A. Having entered his initials on the application, he shall return it to the applicant, who shall take it to the forest-ranger, or, when the forest-ranger is not available, to such other officer as the Deputy-Commissioner or sub-divisional officer shall direct.

"The forest-ranger or other officer shall mark the trees to be felled, and shall note having done so in the application.

"When the trees are felled, the feller shall apply to the mouzahdar of the mouzah in which they have been felled, to whom he should show his application form, and the mouzahdar shall mark the logs with the number they bear in a register which he shall keep in Form D. The mouzahdar shall then give the feller a certificate in Form B., and shall permit the logs to be removed.

"If any person wishes to bring timber of any of the tax-paying descriptions felled in any locality to which these rules are not extended within the boundaries of any district to which these rules are extended, he shall make application verbally or in writing to the mouzahdar of the first mouzah of any such district into which he may import the timber. The mouzahdar shall mark the logs with the numbers they bear in his register D., and give the importer a certificate in form C.

"Any tax-paying timber found in the possession of any person without mark, or in excess of the number entered in his certificate, will be attached and sold, and the proceeds credited to Government.

"Any person who has lawfully felled tax-paying timber within la-khiraj or waste land grants, for the purpose of exporting it beyond the boundaries of such grants, should apply to the mouzahdar of the mouzah within which such grants are situated, and on receipt of such application the mouzahdar shall proceed as directed in Rule 7."

A.

Application for permission to fell Timber in the District of

1	2	3	4	5	6	7	8	9	10	11
Consecutive No.	Name and residence of the applicant.	Description of trees which applicant wishes to fell.	Mouzah.	Locality.	Number of each description.	Girth five feet over the ground (to be given in feet).	Tax realised.	Signature of Treasurer and date.	Signature of officer granting the application.	Signature of forest-ranger or other officer marking the trees to be felled.

B.

Mouzahdar's Certificate showing Timber cut by A. B., in the Mouzah of *District.*

1	2	3	4	5	6	7
Name and residence of woodcutter.	Locality.	Description of trees felled.	Nos. which the logs bear in Register D.	Number felled.	Girth five feet above the ground (to be given in feet).	Mouzahdar's signature and date.

C.

Mouzahdar's Certificate, showing Trees imported into Mouzah *by A. B.*

1	2	3	4	5	6	7
Name and residence of importer.	Locality whence imported.	Description of timber.	Nos. which the logs bear in Register D.	Number imported.	Length and girth of the logs in feet.	Mouzahdar's signature and date.

D.

Register showing the Timber felled in or imported into Mouzah *District*
during the year 187 -187 .

1	2	3	4	5	6
Name and residence of woodcutter or importer.	Locality where the timber is felled (if felled).	Description of timber.	Girth five feet over the ground (if felled) or length and girth of log (if imported).	Consecutive No. marked on each log.	REMARKS.
April, 187 .*					

* *N.B.*—The name of the month should be entered in red ink.

Forests in the Khási and Jaintiá Hills.

87. In the Khási and Jaintiá Hills, the Deputy-Commissioner has again during the year called the attention of the native chiefs and their people to the resolution issued by the Chief Commissioner, regarding the absence of timber forests in these hills, which had been widely circulated in the previous year, with a view to prevent the indiscriminate burning of forests.

All seims, dolois, sirdars, and lyndohs of the Khási and Jaintiá Hills were called upon by proclamation to take steps to prevent injury to the ancient sacred groves, and to mark off forest reserves.

Rights and privileges in Government Forests.

88. A despatch from Her Majesty's Secretary of State for India, No. 11 (Revenue—Forests), dated the 8th October, 1874, together with Government letter No. 37C., dated the 3rd March, 1875, referring to recording of rights and privileges burdening Government forests, and the prevention of the growth of such rights in the future, were circulated in May, 1875, to all Deputy-Commissioners in the Province.

89. An extract of the proceedings of the Forest Conference, held at Allahabad in January, 1874, referring to the jhoom cultivation, was circulated, by order of the Chief Commissioner, to all Deputy-Commissioners, and the Educational and Public Works Departments as well.

Jhoom cultivation.

90. With a view of protecting the forests under the Deputy-Commissioners generally, and to restrict the practice of jhooming, the Chief Commissioner issued a circular to those Deputy-Commissioners in whose districts jhooming was chiefly practised, and, after having received their replies, issued the following orders :—

(1.) Whenever any house-, hoe-, or poll-tax-paying village, or any family of such a village, changes its residence and its cultivation, the village or family must pay double the annual tax for the year of migration.

(2.) Whenever such a village or family entirely changes the site of its cultivation without abandoning its site of residence, the village or family must pay an additional tax of 50 per cent. on the ordinary annual tax for the year of change.

SECTION V.—YIELD OF THE FORESTS.

GAUHATI DIVISION.

91. The yield of the forests in this division is chiefly Sâl-timber, brought out by the department into a sale-depôt at Kukurmara, on the Kulsi River, which timber has hitherto been almost entirely required by the Department of Public Works. But, as nearly all the bridges on the Assam Trunk Road have been completed, Sâl-logs in short lengths, required in Bengal for boat-building, will in future also be brought to depôt.

92. During the year under notice, 400 trees were felled in the Pántán reserve, and cut into 713 logs, 320 of which, together with 54 logs remaining in the forests from last year, were brought into the Kukurmara sale-depôt, leaving 393 logs in the forest at the end of the year.

Timber brought to depôt.

The above 374 logs measured, in the aggregate, 8,884 cubic feet 1 inch. The sales in this depôt during the year amounted to 181 logs, measuring 5,609 cubic feet 3 inches, and realized Rs. 4,792-13-8, or an average of 13 annas 8 pie per cubic foot.

The expenditure on working out the above timber, and bringing it into depôt, has been the following :—

	Rs.	A.	P.
Felling and floating	559	5	0
Dragging (estimated)	819	10	2
Total ...	1,378	15	2

or 2 annas 5 pie per cubic foot.

The net profit, exclusive of permanent establishments, on the timber sold is therefore 12 annas 3 pie per cubic foot.

The stock remaining in the Kukurmara depôt on the 1st April, 1876, was 331 logs, measuring 7,656 cubic feet 2 inches.

The three boats (dug-outs) which had been cut in the previous year have been transferred from the timber account to the store account,—they being used by the department for floating purposes.

93. The sale of trees standing in the forests has increased from 2 to 65 during the year, which latter realized, in the aggregate, Rs. 513. They were all used for cutting boats (dug-outs), since, on account of the difficulty of working out the timber from the reserves, no private people engage in timber trade.

Timber removed by purchasers.

Besides this, 52 dead Sâl-posts were sold in the forest, and realized, in the aggregate, Rs. 35-8, and 294 small pieces, sold at 2 annas each, or an aggregate amount of Rs. 36-12.

TEZPUR DIVISION.

94. The timber brought to depôt during the year in this division was the following :—

		c.ft.	in.
208 Sâl-logs, measuring		1,334	6
4 pieces of converted Sâl-timber, measuring ...		11	2
16 Ajhár-logs, measuring		208	10
319 pieces of converted Ajhár-timber, measuring ...		774	9
8 Pomá-logs, measuring		97	9
Total ...		2,427	0

The total expenditure on the above timber during the year has been—

	Rs.	As.	P.
Felling, floating, and converting	1,069	0	3
Dragging (estimated)	297	12	2
Total ...	1,366	12	5

or nine annas per cubic foot.

The revenue realized during the year in this division by the sale of 1,708 cubic feet 6 inches out of the above timber, and former stock, was Rs. 1,571-13-3, or 14 annas 8 pie per cubic foot, which is a net profit of 5 annas 8 pie per cubic foot.

No minor produce was removed from the forests in this division.

GOLAGHAT DIVISION.

95. The timber operations in this division are limited to indents received from public departments, or private individuals, since it is not advisable to keep any other kinds of timber but Sâl in depôts, as they are subject to rapid deterioration; and, for this reason, the timber worked out of the forests in this division has been but very limited, as enumerated below :—

	Cubic feet
66 Ajhár-logs, measuring	2,354
5 Nahor logs, „	180

The cost of working out this timber has been—

	Rs.	As.	P.
Felling and floating	307	6	6
Dragging (estimated)	170	4	5
Total ...	477	10	11

or 3 annas per cubic foot.

All first-class timber brought into the Golághát depôt is sold at 12 annas the cubic foot, and second-class timber by the log for whatever it will fetch. Second-class wood consists of the upper portions of trees, which are only brought to depôt when a demand for them is probable.

The total amount of first-class timber sold from the Golághát depôt was 2,503 cubic feet, at 12 annas per cubic foot, and fifty cubic feet at Re. 1 per cubic foot; the latter being selected timber, 2,456 cubic feet of which were made over to the Department of Public Works, and adjusted by book-transfer. Besides this, there were sold 156 second-class logs, which realized, in the aggregate, Rs. 644. Twenty-eight first-class logs were set aside in the Golághát depôt, to be used in the building of a forest-house and office in this depôt for the Divisional Forest officer.

The estimates of cost of dragging timber in this and other divisions were made in the manner described in paragraph 323 of last year's report.

GOALPARA DIVISION.

96. The working out of the dead Sâl-wood from the Government forests in the Eastern Duars has been carried on actively by the duffadars, or woodcutters, during

the cold season, and the timber brought out, or on its way out, is estimated to amount to 20,000 posts. But, as the revenue on this timber was not collected before the end of the year, an account of this yield will not be given until next annual report is submitted. Before the end of the year under notice, 517 pieces of dead wood were removed, on which Rs. 297 were realized; also fifty-six trees were sold standing in the forest for the cutting of boats or dugouts, and realized Rs. 192. The yield from these forests must for many years to come remain small, since the mature trees have nearly all been worked out, and the dead wood from these forests will also be removed rapidly after this, and not last more than a few years.

97. A tax has up to the present been levied by the zemindars, on whose estates timber was landed, on its way to the Brahmaputra, and the value of timber from the Government forests been thus depreciated. This has been under investigation during the year, and the Chief Commissioner has decided that land is to be taken up on account of Government, for the purpose of landing and stacking timber, to do away with this imposition.

Timber trade in the Goálpara district.

98. Interesting information has been collected by Mr. Fisher, regarding the timber trade in the Goálpára district, both from Government and private forests, which will be useful to other Forest officers in the Province as well, and is as follows :—

"Timber work is carried on by Mechis and Gáros, who go into the forests in the cold season in parties of fifteen to twenty, under a duffadar, and float the timber down to the large rivers in August. The duffadar advances money for expenses to the timber-cutters, and receives half the price realized for the timber. The duffadars generally sell the timber to local merchants, who forward it to Goalundo, and other places on the Lower Brahmaputra, and also to Dacca and Calcutta. Only Sâl and Sam timber is brought to the market, but the latter is getting very rare. The larger trees are cut into lengths of seven to eight feet, which are called "dhums," and are largely used in Lower Bengal for boat-building. The other pieces brought to the market are classed as pucka or kutcha, according as the sap-wood is rejected or retained.

"The pucka timber consists of—

	Length in feet.	Girth in feet.
Guniseri	7 to 12	1½
Dakwal	15 to 18	1½ to 3
Dosti	21	1½ to 3

"These are mostly dead timbers, of which the sap-wood has disappeared, from exposure. It is stated that the timber is now of such bad quality that of 100 logs of pucka timber, not more than half will really be free from sap-wood.

"The kutcha timber consists, besides dhums, of the following:—

	Length in feet.	Girth in feet.
Bishati	30	3
Mastul	30 to 38	3 to 4½
Gul	16	2 to 3
Dham	24	1½

"The latter is used for fastening across the boats, and suspending the timber from, so that it is submerged.

Floating of timber.

"The boats employed in the timber-trade are either up-country boats, with Hindi boatmen, called *Patalas*, or Bengali boats, called *Bajras* and *Panshis*. The patalas and bajras have crews of ten to thirteen men, and can float 200 pairs of dhums. The panshis have only four men, and carry 50 to 80 pairs. The rates charged for floating from Bogribari to Goalundo are Rs. 2-8 to Rs. 3 per pair. To allow for differences in the dimensions of the timber, the following conversion is allowed:—six dakwals, four dosties, and three small dhums, respectively, counting as a pair of full-sized dhums.

"With four loaded boats it is necessary to take a *jalpana*, or small boat with two men, for soundings and repairs to binding-tackle, &c. This costs Rs. 15 to Rs. 20 a month.

"The cost of sending dhums to Goalundo from Bogribari is given below :—

	Rs.	As.	P.
400 pairs of dhums, at Rs. 2-12 each pair	1,100	0	0
24 „ dhums „ 1-8 „	36	0	0
Hire of jalpana for twenty days, at Rs. 15 per month	10	0	0
Thirty-two maunds of jute, at Rs. 5, for fastening dhums	160	0	0
Total ...	1,306	0	0

Or Re. 1-10-3 per dhum.

Cutting of boats or dugouts.

"There is a considerable trade in dugouts in the district, but the larger ones formerly brought to the market are no longer procurable, except from Upper Assam. The better kinds of trees for this purpose are Sam, Tita Sappa, Koroi, Gomari, Jamu, and Hilika. Sâl is not so highly valued, as, if the water gets in, the boat is liable to

sink with its cargo; it probably surpasses the others, however, in last. As the harder species get rarer, all kinds of soft woods are used, such as Gugera, Patamari, Poma, Paroli, &c. The boats are measured on the inside along the girth, and from edge to edge The dimensions range from two-and-a-half to four hands for boats cut in the Goálpára district. Those of four hands will carry about 60 maunds. If well made, and of hard wood, the price at the market will be Re. 1 to 1-8 per maund. Those made of the softer woods fetch from 8 to 12 annas per maund.

Sources of supply.

"The following are the principal sources of supply of timber:-

On the North Bank.

(1) Government forests in the Duars.
(2.) Zemindari forests of Purbutjhar.
(3.) Forests in Khuntaghat, belonging to the Bijni zemindar.
(4.) Bhutan forests.

On the South Bank.

(5.) Government forests in the Gáro Hills.
(6.) Forests in Mechpara zemindari.
(7.) Forests in Habraghat, belonging to the Bijni zemindari.

"The Purbutjhar forests yield a quantity of inferior timber under 3 feet in girth, principally used for house-posts.

"The Bhutan timber is brought down by Meech duffadars, who take their men up to the hills in the dry season.

"The Bhutia Agent, who gives licenses, states that last year twenty-five parties went up to fell timber. The charge is Rs. 5 per axe, and Rs. 4 from each duffadar.

"He also states that the timber is getting inaccessible, and that the number of licenses given is diminishing. The quantity of Bhutan timber brought down last year to Bogribari was—

Sâl dhums	...	...	...	...	...	4,797
Sam „	...	...	...	...	...	387
					Total ...	5,184

"These sell at an average rate of Rs. 10-8 per pair.

"Fellings have been excessive for years in the private forests of the Purbutjhar, and numbers of woodcutters search the forest every year for timber, felling every tree which they consider saleable; the lower standard of girth, at five feet from the ground, being now reduced to 2 feet 6 inches.

"Last year, according to the zemindari books shown to me by the dewan, 110,000 logs were received at the ghats of Silai and Bogribari.

"They receive from the woodcutter Rs. 40 per hundred for dhums, and from Rs. 13-4 to Rs. 28 for small posts, according to dimensions. They also take a "Salami" of Rs. 6-4 per hundred rupees, which the woodmen receive from the merchants. The timber from the Purbutjhar is considered of inferior quality, and fetches the following prices at Bogribari, from the boatmen who come from Mymensing, Goalundo, Dacca, &c.

Dhums of 6 feet to 8 feet length	...	per pair, Re. 1 to Rs. 2, according to girth.
House-posts, mostly kutcha	...	per hundred, Rs. 100 to 200, according to girth and length.

"The proprietors are at no expense whatever for their forests, receiving the charges for the timber from the woodmen at the ghats."

CACHAR DIVISION.

99. The direct control by the officer in charge of this division over the yield of the Cachar forests was only assumed on the 1st April, 1876, up to which time the Deputy-Commissioner of the district collected this information, which was reported as follows :—

"Timber cut during the year ... ... 14,894 logs and 395 pieces."

Besides this, permits to collect forest produce were granted, the fees for which amounted during 1875-76, in the aggregate, to Rs. 1,690. Confiscated timber was sold to the amount of Rs. 72, and the right to cut thatching-grass was sold by public auction for Rs. 106.

Forests under Civil Officers.

100. As stated in the previous section of this report, rules for regulating the felling of tax-paying trees in these forests were issued by the Chief Commissioner during the current year, and some time must naturally elapse before they are thoroughly understood and work smoothly, and the statistical information collected under these rules is, for the same reason, not as complete as it might be. All this will improve as the management of these forests advances, and the new rules are applied. The system of forest accounts, as rendered by the district officers, is also defective, which has been brought to the notice of the Chief Commissioner. In a

Tax paying trees.

year or two there is every hope that the statistical information regarding the yield from the vast areas of forest directly managed by the district officers will be as complete as that now being collected regarding the forests in charge of forest officers.

The quantity of timber sold, as reported by the Deputy-Commissioners of the different districts, is noted below:—

	Logs.	Pieces.
Kámrúp	... 928	23
Darrang	... 680	...
Nowgong	... 310	68
Sibságar	... 136	...
Lakhimpur	... 62	...
Nága Hills	... 4	...

Other forest produce free of tax.

101. Large quantities of forest produce, such as those kinds of trees not included within the twenty-nine kinds quoted in paragraph 84 of last year's report, but for which there is a good demand in the Province, and firewood for the steamers on the Brahmaputra, are removed from the forests under the district officers as yet free of charge, and are not subject to the rules for felling tax-paying timber; so that no information regarding this yield from the Government forests is available. Regarding this, proposals were also submitted, and are under the consideration of the Chief Commissioner.

Trade in tea-boxes.

102. With a view of ascertaining the quantities of inferior woods required in this Province for the manufacture of tea-boxes and firewood, and how far these requirements are supplied at present from the forests in this Province, and how far from other provinces, statistics were collected during the year from the two trading-steamer companies in the Province, which are exhibited in a tabular statement attached to this report (Appendix V.)

The difference between the import of tea-boxes and export of tea will give the probable number of boxes manufactured in the Province, except breakages occurring whilst the tea-boxes imported are in transit. It will thus be seen that only 1,384 boxes appear to have been manufactured in Assam Proper in 1875, whilst 137,102 were consumed; and in Sylhet and Cachar 47,938 were manufactured, out of the total of 54,381 consumed.

The number of tea-boxes manufactured by the Keatinge Saw-mill in Cachar during 1875 was 5,474.

The Dehing Saw-mill was not working regularly in the early months of 1875, for which reason the agents did not give the outturn of 1875; but they were good enough to furnish the outturn of the Mill from June, 1875, to May, 1876, which amounted to 13,504 tea-boxes.

These figures show that Sylhet and Cachar import very little, and manufacture nearly all boxes at home, whilst Assam Proper imports nearly the whole of her tea-boxes from Calcutta and Kushtia. The reason for this cannot be explained, otherwise than by want of enterprise in Assam Proper, since there are very extensive forests as favourably situated as in Sylhet and Cachar, and up to the present the Dehing Saw-mill has paid no tax whatsoever on the inferior woods obtained from the Government forests, which are used for the manufacture of tea-boxes.

Firewood.

103. The amount of firewood bought during 1875 by the two trading-steamer companies in Assam Proper was as follows:—

	Maunds.
By India General Steam Navigation Company	30,880
By Rivers Steamer Navigation Company	16,030

The Cachar steamers do not burn firewood.

SECTION VI.—FINANCIAL.

104. When considering the financial results of the Forest Department, it has to be remembered that in this Province much forest produce is removed from the forests

without payment, since ryots are allowed to supply all their wants free of charge from the Government forests, except the reserves. Grazing-dues are unknown, and grass, timber, bamboos, firewood, and, in fact, almost everything except tax-paying timber (twenty-nine kinds) is removed, even for the purpose of trade, free of payment. All forest produce consumed in Cachar is free, with the exception of a fee of one rupee paid by every woodcutter for six months, and one rupee per annum for every elephant dragging timber. Thus, the communities at large, and even traders, have enjoyed, and are enjoying, great advantages from the forests which do not appear in the accounts. The valuable Sâl forests in the valley districts had nearly all been worked out before conservancy commenced, and require many years' rest and care before fellings can be recommenced in them; and the demand for the other reserved trees is as yet very limited, and confined to the Province. Naturally, these valuable, but exhausted, forests are under the management of forest officers, as they require the most care, and on these almost all the expenditure of the department is at present incurred, which makes the forest divisions appear in a very unfavourable light, when the results of the year's work is shown in figures, and a balance is struck between receipts and expenditure. For all this, it will be seen from the figures below that the total receipts from the forests in the Province have increased during the year by Rs. 41,352, even exclusive of the revenue from Soom forests, which has by mistake been credited in the Civil Account Department to Land Revenue."

105. The summary of revenue and expenditure (Form No. 28) attached to this report was furnished by the Deputy-Accountant-General, and the omission of the revenue from Soom forests from the forest accounts has been brought to the notice of the Chief Commissioner.

106. The budget estimate, regular estimate, and actuals of the year stand as follows :—

		Budget Estimate.	Regular Estimate.	Actuals.
		Rs.	Rs.	Rs.
Receipts		85,000	1,21,457	1,07,301
Charges	A.	20,500	25,354	33,186
	B.	40,500	35,802	28,697
Total		61,000	61,156	61,883
Surplus		24,000	60,301	45,418

The great difference in the receipts and surplus between the regular estimate and actuals is owing to the omission of revenue derived from Soom forests above mentioned.

The actuals of expenditure are very near the regular estimate. The excess expenditure, under "A.—Conservancy and Works," was very urgent, and incurred with the permission of the Supreme Government. This sanction of an additional Rs. 10,000 was received after the submission of the regular estimate.

The saving under "B.—Establishments," is owing to the return of one of the officers from leave much later than expected, and two other officers having gone unexpectedly on sick leave.

107. The receipts of the year under review, as compared with those of the previous year, are the following :—

Receipts, 1874-75.	Receipts, 1875-76.	Increase, 1875-76.
Rs.	Rs.	Rs.
65,949	1,07,301	41,352

The above amount, shown as receipts of 1874-75, differs from that shown in last Annual Report by Rs. 1,200, which is an adjustment effected in the Civil Account Department after the submission of the last Annual Report. The same is the case with the total of expenditure of 1874-75, in which an adjustment of Rs. 485-6-9, was made by the Civil Account Department after the submission of last year's Forest Report.

108. The expenditure during the year under notice is nearly the same as in the previous year, and shown in detail in the following table :—

Budget Heads.	1874-75.	1875-76.	Increase.	Decrease.
A.—Conservancy and Works.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
I. Cost of timber operations	2,444 10 0	2,092 5 9	.....	352 4 3
II. Cost of collecting minor produce ...	1,774 4 0	2,321 8 0	547 4 0	.....
III. Cost of forest organization	93 1 0	765 14 10	672 13 10	.....
IV. Cost of treatment and creation of forests	12,768 0 5	14,047 5 3	1,279 4 10	.....
V. Rent of leased forests	50 0 0	50 0 0	.....	.....
VI. Cost of collecting duty on forest produce	.....	.....	.....	.....
VII. Works of utility for the development of forests	4,119 3 9	4,820 12 3	701 8 6	.....
XIII. Cost of departmental cattle	7,206 6 9	6,534 9 6	.....	671 13 3
IX. Cost of tools and plant	1,823 11 0	2,394 0 6	570 5 6	.....
X. Miscellaneous charges	1,055 13 10	159 15 0	.....	895 14 10
B.—Establishments.				
I. Salaries	22,618 9 8	23,869 10 11	1,251 1 3	.....
II. Travelling allowance	5,390 0 11	4,000 3 6	.....	1,389 13 5
III. Contingencies	664 3 4	827 6 2	163 2 10	.....
Total ...	60,008 0 8	61,883 11 8	5,185 8 9	3,309 13 9

The increase under "II.—Collection of minor produce," as, in fact, the whole of the expenditure under this head, is a mere book-entry, since it is incurred only by the Deputy-Commissioner of the Gáro Hills on account of purchase of Rubber, which is resold immediately and a corresponding amount credited under "Receipts."

The increase under the other heads is small and unimportant, and is the natural consequence of the progress in the work. The decrease under timber expenses is accounted for by the cessation in timber works on account of limited timber sales from the Government depôts; the stock in hand at the end of the year under review being greater than at the commencement. There are no regular and certain timber-markets in the Province, and an export trade exists only in the Goálpára and Kámrúp districts in Sâl-timber. The development of a trade in other kinds of timber from the districts higher up the Brahmaputra can only be attempted very cautiously, to prevent losses on such timber operations.

The decrease in expenditure on account of cost of departmental cattle is accounted for by the loss of elephants in the previous year, and the late purchase of only two new animals.

The decrease under "X.—Miscellaneous" is explained by the refunds which had to be made in 1874-75, whilst none were made in the year under notice.

Under "B.—Establishments," the increase is due to the promotion of officers, and the decrease to the absence of officers on leave.

109. The distribution of receipts and expenditure in the different divisions is exhibited in the following table :—

Name of Division.	Receipts.	Expenditure.	Surplus.	Deficit.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Direction	.....	12,842 2 2	.....	12,842 2 2
Gauháti Division	5,378 1 8	11,630 8 3	.....	6,252 6 7
Tezpur „	1,895 12 9	16,607 5 9	.....	14,711 9 0
Golághát „	3,137 2 0	6,166 11 9	.....	3,029 9 9
Goálpára „	502 8 0	5,161 3 0	.....	4,658 11 0
Cachar „	.....	443 8 9	.....	443 8 9
Civil Officers	96,398 7 0	9,032 4 0	87,356 3 0	.....
Total	1,07,301 15 5	61,883 11 8	87,356 3 0	41,937 15 3

This shows that the chief amount of revenue is realized by district officers, and the chief expenditure incurred by forest officers, which is, under the peculiar conditions of the forests explained above, how it ought to be. Meantime, every effort is made by the

Deputy-Conservator to increase the receipts wherever this can legitimately be done, and by insisting on the strictest economy, down to the smallest items of expenditure, and by watching it in the minutest details.

The receipts from Caoutchouc, formerly so large in this Province, are next to none at present; but, proposals regarding the control of this trade were submitted to Government by the Chief Commissioner.

SECTION VII.—GENERAL.

Accounts.

110. As already stated in last year's Annual Report, the accounts of forest officers are first submitted to the Deputy-Conservator to check and classify, and then to the Deputy-Accountant-General for audit and adjustment, copies of all cash-books being made and kept in the Direction office for ready reference.

On representations having been made, the same procedure was approved by the Chief Commissioner with reference to the forest accounts of civil officers. But, as these are not kept separate from the ordinary miscellaneous accounts of the district, it could not be done without an alteration in the system. This has been proposed, and is under the consideration of the Chief Commissioner.

Deputy-Conservator's Tour.

111. On the 13th of September, 1875, the Deputy-Conservator went first to the Gauháti division to give instructions regarding plantation and timber works. then started for Simla to attend the Forest Conference, and returned to the Gauháti division in November, and inspected the plantation works. After this, the Tezpur and Golághát divisions were inspected, measurements in the different plantations made, and all the reserves and control stations visited. The Makum plantation was also examined, and measurements made. On his return from Upper Assam, the Deputy-Conservator visited the Tezpur division a second time, and the management of the Charduar Caoutchouc plantation reserve was arranged with the Deputy-Commissioner.

After this, the Deputy-Conservator again inspected the Gauháti division, where Mr. Mein, one of the Junior Assistants, had in the meanwhile arrived from England. Then the Goálpára division, where Messrs. Fisher and D'Arcy were engaged in survey and valuation work of the Sidli forest, was visited; and the inspection of the forests in the Gáro Hills completed the Deputy-Conservator's tour on the 30th of April, 1876.

Elephants.

112. No losses occurred amongst these valuable, and, for the forester in this Province, most indispensable animals. Their number was insufficient during the year under notice, and much inconvenience and loss of time caused thereby. But the purchase of six additional animals has now been sanctioned, and the work in the department will thereby be rendered much more effective, and better health of the staff and safety of life be ensured to all; moreover, less work has to be done by each individual animal, which, undoubtedly, amongst elephants more than any other live stock, tends to prolong life.

CONTEMPLATED WORK in 1876-77.

Gauháti Division.

113. Fire-protection in the Sâl forests is here the first and all-important work, to which everything else must give way whenever circumstances require it. The valuation surveys in the Barduar reserve will be commenced early in the season, and proceeded with steadily; this will be done by the divisional officer, who should give his time chiefly to this important work, and only leave it when other and very urgent work absolutely requires his personal attention elsewhere. The clearing of artificial boundary-lines, repairing and increasing of boundary-mounds of the prescribed size, must also be steadily pushed on during the season. The cutting of creepers in the Sâl forests of the Barduar reserve will be carried out simultaneously with the valuation surveys. The collecting of Nahor-, Rubber-, and Poma-seed must be done at the proper season. Land suited for a timber-depôt at Nagorbera, near the mouth of the Kulsi River, is to be selected.

Four hundred Sâl-trees will be felled, logged, and barked, so as to be ready for dragging whenever the elephants are available for this work.

Tezpur Division.

114. All Sâl forests must be strictly protected against fire, as in former years, and the Bamuni Hill Caoutchouc plantation also. The cutting of creepers and useless trees, where they interfere with the growth of Sâl, will be carried out simultaneously with the fire-protection. All artificial boundary-lines must be cleared, and the boundary-mounds be repaired and increased, and strong posts for numbers placed in the centre of each. New nurseries for Rubber-seed and cuttings on high land will be prepared at the commencement of the season. The inspection-paths and plants in the old Rubber plantation will be cleared, the fences repaired, and vacancies, if any, be filled up. The planting of the new lines should not be commenced later than the 15th of November, and the making of cuttings not later than the 15th of December. Rubber-seed must be collected as soon as it begins to get ripe. Two more bridges will be constructed on the road leading from Dhekargoan to the Caoutchouc plantation, and a road will be prepared along the southern boundary line of the Charduar Caoutchouc plantation reserve for three-and-a-half miles. The working out of the dead wood from the Balipara Sâl forest is to be continued.

Golághát Division.

115. Two hundred trees of Ajhar and Nahor will be felled, barked, and logged, and brought in to the Golághát depôt. All the artificial boundary-lines will be cleared, the boundary-mounds repaired and increased where necessary, and a strong Nahor post for a number placed in the centre of each. The road leading to the Murphelani control-station will be repaired, and bridges constructed where indispensable. All the forest-huts at the control-stations will be repaired, and the building of a forest-house in the Golághát depôt commenced. Nahor-seed will be collected, as soon as ripe, for experimental sowing in the Nambor reserve.

Goálpára Division.

116. The survey of the boundaries of the remaining portion of the Sidli forests must be completed before anything else is attempted, and a description of these boundaries be submitted, with a view of having this forest also declared a reserve. After this, the northern boundary of the Ripu, Chirang, and Bijni reserves is to be inspected, and a special report to be submitted on the Khairbuna forest, and the Khair forests on the Kanamukro and Kakolang Rivers; the artificial boundary-lines of the other reserves must be gone over, and boundary-mounds be repaired and renewed where necessary.

Fire-protection is for the present year to be confined to the Sidli forest, where the protective measures must be carried out thoroughly. Valuation surveys will be continued, first in the Sidli forest and afterwards in the Goma forest. A substantial inspection-hut will be erected at Balatong, and another one at the Bijni reserve, and the one at Gurubassa be completed.

Cachar Division.

117. All the artificial boundary-lines of the Government forests must be cleared, and boundary-mounds erected, where necessary. The boundaries of tea-estates within or adjoining the Government forests must be gone over and reported on. The same must be done as regards all other cultivation existing within or adjoining the Government forests, and a complete record be prepared of such lands in accordance with the orders of Government. The detailed examination of the Jiri forest will be commenced after the above boundary work has been completed. A substantial hut for the use of the toll-collector and other establishments is to be built at the Sealtek toll-station. An inquiry into the felling of timber in the North Cachar Hills, and the floating on the Ballessur River, is to be made and reported on.

Civil Officers.

118. The fire-protection of the Pine forests and plantations at Shillong will be continued. The Nongklao Cinchona plantations will also be protected against fire. Plantation works will be confined to the sowing of the indigenous Pines and Oaks. The trees in the Makum Teak plantation will be examined and measured.

Services of Officers.

119. The Gauháti forest division remained in charge of the forest-ranger, Babu Chandra Bhusan Sen, from the commencement of the year, until Mr. Mein arrived from Europe, in January, 1876.

The Tezpur division was in charge of Mr. W. R. Fisher from commencement of the year until December, when he was transferred, and the division remained in charge of Forest-ranger Babu Jay Narayan Das.

The Golághát division was in charge of Mr. H. B. Condon, from the commencement of the year until January, 1876, when he had to go on sick leave.

The Goálpára division was managed by the Deputy-Conservator until Mr. Fisher received charge, in December, 1875.

The Cachar division was only started in February, 1876, on the return of Mr. Shakespear from Europe, and taken charge of by him. Mr. W. E. D'Arcy was appointed to the Tezpur division; but employed on special duty in the Goálpára division during the working season.

The Deputy-Conservator has every reason to be satisfied with the work done by the officers of the department.

Messrs. Fisher and D'Arcy have done good and important work in the survey and valuation of a portion of the Sidli forest, and would have done more, if this had not been the first year, and difficulties such as present themselves usually at starting had not delayed progress in the beginning.

Mr. Mein set to work with a will as soon as he arrived in Assam, and exerted himself to the utmost to keep the fires out of the Sâl forests in the Gauháti division.

Mr. W. Shakespear, although he only arrived in February, 1876, has, with praiseworthy energy, set to work to organize the new system in Cachar.

Mr. H. B. Condon worked well, and carried out vigorously the protection of the reserves in the Golághát division. He was obliged to go on sick leave to Europe before the end of the year.

Of the subordinates, the Deputy-Conservator has much pleasure in recording that Babu Joy Narayan Dass has fully sustained his good reputation as a hardworking and trustworthy man; and of Forest-ranger Babu Chundra Bhusan Sen, Mr. Mein very justly says that he was placed in a difficult and responsible position by the illness and departure of Mr. Aylmer, and earned credit by the way he managed the Gauháti division whilst it had to remain in his charge.

Form No. 26.

FOREST DEPARTMENT, ASSAM.

Dr. *Annual Account Current for the year* 1875-76. Cr.

	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
To Cash Balance on the 1st April, 1875	2,469 2 9		By expenditure under A	33,186 7 1	
„ revenue received in cash	99,747 9 9		„ expenditure under B	28,697 4 7	
„ revenue adjusted by book-transfer	7,554 5 8		„ remittances to Public Treasuries	99,747 9 9	
„ contribution to Funds	480 0 0		„ revenue adjusted by book-transfer	7,554 5 8	
„ remittances from treasuries	60,243 15 3		„ advances recoverable	13,727 3 3	
„ advances recoverable	13,270 9 6				
„ remittances from the Government Mathematical Instrument Department, by book-transfer	469 3 0		By Cash Balance on the 31st March, 1876	1,428 8 3	
„ remittances from the Indian Medical Department by book-transfer	106 8 3				
		1,84,341 6 7			1,84,341 6 7

Form No. 28.

FOREST DEPARTMENT, ASSAM.

Annual Summary of Revenue and Expenditure of the different Divisions during 1875-76.

REVENUE.

Classification.	Direction.	Gauháti.	Tezpur.	Golághát.	Goálpára.	Cachar.	Civil Officers.	Total.
I.—Revenue from Wood.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
1. Brought to depôt by departmental agency—								
(a.)—Timber	.....	4,792 13 8	1,732 14 3	3,074 12 0	.....	.....	.....	9,600 7 11
(b.)—Firewood and charcoal.								
(c.)—Sandal-wood.								
2. Wood removed from the forests by purchasers, license-holders, and permit-holders—								
(a.)—Timber	.....	585 4 0	.....	.....	489 0 0	.....	21,919 1 8	22,993 5 8
(b.)—Firewood and charcoal.								
3. From confiscated, drift, and waif-wood	.....	.....	.....	.....	.....	.....	73 0 0	73 0 0
II.—Revenue from Minor Produce.								
1. Grazing-dues and sale of grass	.....	.....	.....	.....	.....	.....	50 0 0	50 0 0
2. Other minor produce	.....	.....	.....	12 4 0	.....	.....	22,416 14 6	22,429 2 6
III.—Duty on Produce of Foreign or Private Forests imported into British Territory.								
1. On wood	.....	.....	.....	.....	.....	.....	15,063 15 0	15,063 15 0
2. On other forest produce.								
IV.—Miscellaneous.								
1. From fines and forfeitures	.....	.....	.....	.....	13 8 0	.....	6 0 0	19 8 0
2. From refunds to the Department	.....	.....	161 12 6	50 2 0	.....	.....	6 2 0	218 0 6
3. From other sources	.....	.....	1 2 0	.....	.....	.....	36,853 6 0	36,854 8 0
Total Receipts	.....	5,378 1 8	1,895 12 9	3,137 2 0	502 8 0	.....	96,388 7 0	1,07,301 15 5

Form No. 28.

EXPENDITURE.

Classification.	Direction.	Gauhâti.	Tezpur.	Golâghât.	Goâlpâra.	Cachar.	Civil Officers.	Total.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
A.—CONSERVANCY AND WORKS.								
I.—Cost of Timber Operations.								
1. On wood brought to depôt by departmental agency—								
(a.)—Timber	.....	559 5 0	1,069 0 3	464 0 6	.....	.....	.....	2,092 5 9
(b.)—Firewood and charcoal.								
(c.)—Sandal-wood.								
2. On wood removed from the forests by purchasers, license-holders, and permit-holders—								
(a.)—Timber.								
(b.)—Firewood and charcoal.								
3. On confiscated, drift, and waif-wood.								
II.—Cost of Collecting Minor Produce.								
1. Grazing and sale of grass.								
2. Other forest produce	.....	.....	.....	.....	.....	.....	2,321 8 0	2,321 8 0
III.—Cost of Forest Organization.								
1. Demarcation-lines and boundary-pillars or marks.	.....	8 12 0	155 9 3	84 12 0	76 4 0	.....	.....	325 5 3
2. Working plans.								
3. Surveys	13 3 6	.....	4 2 0	33 12 0	367 7 3	22 0 10	.....	440 9 7
IV.—Cost of the Treatment and Creation of Forests.								
1. Natural Forest—								
(a.)—Protection from fire	.....	1,002 7 3	275 1 6	.....	23 8 0	.....	122 0 0	1,423 0 9
(b.)—Fencing and enclosing.								
(c.)—Improvement and conservation	21 0 0	210 0 0	17 14 0	123 8 9	3 0 0	.....	5,053 9 0	5,428 15 9
(d.)—"Re-boisement," or restoration of denudol areas	.....	.....	156 1 3	.....	.....	.....	58 0 0	214 1 3
2. Artificial forests—								
(a.)—Formation	.....	1,230 11 0	2,686 11 3	.....	.....	.....	979 3 0	4,896 9 3
(b.)—Protection from fire	.....	80 15 0	17 14 0	.....	.....	.....	.....	98 13 0
(c.)—Improvement and conservation	.....	404 14 0	778 2 0	97 6 3	.....	.....	446 0 0	1,726 6 3
(d.)—Fencing and enclosing	.....	230 15 0	28 8 0	.....	.....	.....	.....	259 7 0
V.—Rent of Leased Forests	.....	.....	.....	.....	.....	.....	50 0 0	50 0 0
VI.—Cost of Collecting Duty on Produce of Foreign or Private Forests imported into British Territory.								
VII—Works of Utility for the Development of Forests.								
1. Roads and bridges	.....	45 6 0	933 13 6	67 12 6	.....	.....	2 0 0	1,049 0 0
2. Buildings and offices	140 0 0	387 4 0	2,426 15 9	505 2 0	289 7 0	.....	.....	3,748 12 9
3. Compensation for land taken up for forest purposes, or for extinction of forest rights.								
4. Other works	22 15 6	.....	.....	.....	.....	.....	.....	22 15 6
VIII.—Cost of Departmental Cattle.								
1. Purchase of stock	.....	1,600 0 0	2,117 0 0	.....	.....	.....	.....	3,717 0 0
2. Hire of stock	.....	.....	.....	.....	.....	70 0 0	.....	70 0 0
3. Feed and keep of cattle	38 10 0	1,385 9 6	923 3 9	292 8 0	107 15 3	.....	.....	2,747 9 6
IX.—Cost of Departmental Plant and Tools.								
1. For timber and wood operations	19 6 0	35 15 6	316 14 0	167 14 0	.....	.....	.....	540 1 6
2. For other purposes	578 7 6	916 7 3	137 8 3	119 0 0	81 12 0	20 12 0	.....	1,853 15 0
X.—Miscellaneous Charges.								
1. Refunds	.....	.....	.....	.....	.....	.....	.....	.....
2. Law charges	.....	.....	.....	22 1 0	8 0 0	.....	.....	30 1 0
3. Other charges	26 3 0	22 10 0	48 11 0	32 6 0	.....	.....	.....	129 14 0
Total of A.—Conservancy and Works	859 13 6	8,121 3 6	12,093 1 9	2,009 14 0	957 5 6	112 12 10	9,032 4 0	33,186 7 1
B.—ESTABLISHMENTS.								
I.—Salaries.								
1. Pay of Deputy-Conservator	6,000 0 0	.....	.....	.....	.....	.....	.....	6,000 0 0
2. Pay of Control and Executive Officers	.....	1,038 11 3	1,500 0 0	2,000 0 0	2,276 5 9	325 10 11	.....	7,139 11 11
3. Protective establishments	.....	1,758 8 0	2,176 0 0	988 5 2	851 0 0	.....	.....	5,773 13 3
4. Office establishments	3,397 11 9	462 1 6	263 1 0	595 9 0	90 10 6	.....	.....	4,726 1 9
5. Deputation and special allowances	230 0 0	.....	.....	.....	.....	.....	.....	230 0 0
II.—Travelling Allowances.								
1. Deputy-Conservator	1,749 12 0	.....	.....	.....	.....	.....	.....	1,749 12 0
2. Control and Executive Officers	.....	214 0 0	533 0 0	592 15 6	873 13 0	.....	.....	2,234 12 6
3. Protective establishments	.....	.....	.....	.....	2 0 0	.....	.....	2 0 0
4. Office establishments	13 11 0	.....	.....	.....	.....	.....	.....	13 11 0
III.—Contingencies.								
1. Stationery	116 9 9	.....	9 4 0	1 14 0	.....	.....	.....	127 11 9
2. Office rent and carriage of tents and records	.....	.....	1 8 0	0 12 0	64 9 0	.....	.....	66 13 0
3. Pay of Police guards.								
4. Sundries	309 3 2	14 0 0	9 10 0	46 14 6	26 7 3	.....	.....	397 2 11
5. Official postage	165 5 0	15 0 0	10 13 0	19 7 6	20 0 0	5 1 0	.....	235 10 6
Total of B.—Establishments	11,982 4 8	3,509 4 9	4,514 4 0	4,156 13 9	4,202 13 6	330 11 11	.....	28,697 4 7
Grand Total of all Expenditure	12,842 2 2	11,630 8 3	16,607 5 9	6,166 11 9	5,161 3 0	443 8 9	9,032 4 0	61,883 11 8

FORM No. 29.

FOREST DEPARTMENT, ASSAM.

Annual Statement of Outstandings and Liabilities on account of Contractors or Disbursers for 1875-76.

Detail of Division.	Department Debtor.			Department Creditor.			Balance Due.	
	At commencement of the year	Recoveries in cash, and value of supplies and work done.	Total.	At commencement of the year.	Payments made.	Total.	To Department (outstandings).	By Department (Liabilities).
		Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Direction	....	1,218 9 0	1,218 9 0	.....	1,218 9 0	1,218 9 0	.....	.....
Gauhâti	....	958 0 0	958 0 0	5 0 0	974 0 0	979 0 0	21 0 0	.....
Tezpur	....	8,980 14 6	8,980 14 6	264 1 6	9,039 1 0	9,303 2 6	322 4 3	0 0 3
Golaghât	....	1,414 5 0	1,414 5 0	467 1 0	1,395 5 3	1,862 6 3	448 1 3	.....
Goalpára	....	682 5 0	682 5 0	.....	1,100 4 0	1,100 4 0	417 15 0	.....
Cachar	....	.....	.....	.....	.....	.....	.....	.....
Civil Officers ..	....	16 8 0	16 8 0	16 8 0	.....	16 8 0	.....	.....
Total ..	....	13,270 9 6	13,270 9 6	752 10 6	13,727 3 3	14,479 13 9	1,209 4 6	0 0 3

FORM No. 30.

FOREST DEPARTMENT, ASSAM.

Annual Account of Forest Revenue for the year 1875-76.

		Rs. As. P.		By Revenue collected—	Rs. As. P.
	To Assets—				
1st April, 1875 ..	Value of timber at the commence of year	4,629 0 0	31st March, 1876 ..	Cash and Transfers ..	1,07,301 15 5
	Ditto ditto of other stock ditto..	13,647 0 0		By Assets—	
	Dues* to Forest Department ..	2,101 14 6	Ditto	Value of timber at close of year	5,569 1 3
31st March, 1876 ..	To outlay during the year ..	61,883 11 8		Value of other stock at close of year	19,612 0 0
	Total ..	82,261 10 2		Dues* to Department. ..	1,893 15 3
Ditto ..	To profit for the year ..	52,115 5 9			
	Total ..	1,34,376 15 11		Total ..	1,34,376 15 11

* Difference between dues to, and dues by, the Department are explained in detail below, and in accordance with entries in Statements 29 and 41 :—

EXPLANATION OF DIFFERENCE BETWEEN DUES TO, AND DUES BY, THE DEPARTMENT.

Dues to Forest Department on the 1st of April, 1875

	Rs. As. P.
On account of sales.....	1,349 4 0
„ „ outstanding advances.....	752 10 6
Total.....	2,101 14 6

Dues to Forest Department on the 31st of March, 1876.

On account of sales.....	684 11 0
„ „ outstanding advances	1,209 4 6
Total.....	1,893 15 6
Deduct amount due by the Department	0 0 3
Total.....	1,893 15 3

FORM No. 39.

FOREST DEPARTMENT, ASSAM.

Statement of Timber brought to Depôts from the different Forest Divisions during 1875-76.

Name of River or Division.	Forest.	Description of Timber.	Pieces.	Cubic Feet.	Total of each River or Division.	
					Pieces.	Cubic Feet.
				ft. in.		ft. in.
Gauhâti Division	Pantan Reserve	Sál logs	374	8,884 1	374	8,884 1
Tezpur „	Ballpara „	Sál logs (dead wood)	184	795 4	....	....
„ „	Charduar Forest	Ajhár planks	160	320 0	....	....
„ „	„ „	„ scantlings	66	245 0	....	....
„ „	Ballpara Reserve	Poma	8	97 9	....	....
„ „	„ „	Sál logs	24	539 2	....	....
„ „	„ „	Ajhár logs	16	208 10	....	....
„ „	„ „	Sál planks	1	2 10	....	....
„ „	„ „	„ scantlings	2	8 4	....	....
„ „	„ „	Ajhár planks	93	209 9	555	2,427 0
Golaghât „	Nanbor „	Nahor	5	180 0	....	....
„ „	„ „	Ajhár	66	2,354 0	....	....
„ „	„ „	Nahor (second class)	160	....	....	....
„ „	„ „	Ajhár „ „	8	....	....	....
„ „	„ „	Poma „ „	16	....	260	2,534 0
		Total ..	....	....	1,179	13,845 1

Form No. 40.

FOREST DEPARTMENT, ASSAM.

Annual Timber Account for 1875-76.

Description of Timber and Scantling.	Pieces.	Total.	Description of Timber and Scantlin	Pieces.	Total.
I.—Stock in hand at the commencement of the year—			I.—Removed by purchasers—		
Gauhâti Division ..	141		Gauhâti Division	181	
Tezpur „	43		Tezpur „	490	
Golâghât „	46	230	Golâghât „	226	897
			II.—Used by the Department—		
			Gauhâti Division	3	
			Tezpur „	71	
II.—Received during the year—			Golâghât „	28	102
			III.—Balance in hand at the close of the year—		
Gauhâti Division	374		Gauhâti Division	331	
Tezpur „	555		Tezpur „	37	
Golâghât „	250		Golâghât „	42	
		1,179			410
Total.....	....	1,409	Total.....	....	1,409

Form No. 41.

FOREST DEPARTMENT, ASSAM.

Statement showing the amount realized on Account of the different classes of Timber sold during the year 1875-76.

Divisions and descriptions of Timber.		Number of logs and pieces.	Average cubical contents per log.	Amount realized and due on account of timber sold.	Average amount per log.	Average amount per 100 cubic feet.
			ft. in.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Gauhâti Division	Sâl logs	181	30 11	4,792 13 8	26 7 8	85 7 1
	Sâl posts	10	28 3	247 12 3	24 12 5	87 7 11
	„ (dead wood)	204	4 0	644 10 0	3 2 6	77 9 6
	„ planks	1	2 10	4 4 0	4 4 0	150 0 0
Tezpur „	„ scantlings	3	4 2	14 15 0	4 15 3	119 8 0
	Uriam logs	12	5 8	17 2 0	1 6 10	25 0 0
	Ajhâr planks	228	2 1	594 11 0	2 9 8	123 15 3
	„ scantlings	82	0 11	48 7 0	1 8 2	156 4 0
	Nahor logs	5	36 0	147 8 0	29 8 0	81 15 1
	Ajhâr logs	65	36 6	1,779 12 0	27 6 1	75 0 0
Golâghât „	Jamu logs	1	23 0	6 0 0	6 0 0	26 1 4
	2nd class Nahor	152	.....	620 0 0	4 1 3	.....
	„ Ajhâr	3	.....	18 0 0	6 0 0	.....
	TOTAL....	897	11 0	8,935 14 11	9 15 4	90 5 1
	Deduct amount due, but not realised during the year.....			684 11 0		
	Balance			8,251 3 11		
	Add amount realized on account of former years			1,349 4 0		
	Add amount collected by District Officers.....			.....		
	Total shown as Revenue on account of timber sales			9,600 7 11		

Form No. 42.

FOREST DEPARTMENT, ASSAM.

Statement showing the Amount expended on account of Timber received from Divisions during 1875-76.

1	2	3	4	5	6	7	8	9
Divisions.	Number of logs and pieces.	Cubical contents.	Timber expenses.	Conservancy expenses, cost of establishment, &c., of the department, excluding Direction.	Total amount expended, including Direction.	Average cubical contents per log or piece.	Average amount paid per 100 cubic feet.	Remarks.
		ft. in.	Rs. As. P.	Rs. As. P.	Rs. As. P.	ft. in.	Rs. As. P.	The figures in column 5 represent the total expenditure of the respective divisions, excluding timber expenses and direction.
Gauhâti Division ..	374	8,884 1	559 5 0	11,071 3 3	14,198 15 1	23 9	159 13 2	
Tezpur „ ..	555	2,427 0	1,069 0 3	15,838 5 6	19,175 12 7	4 4	790 1 7	The figures in column 6 include timber expenses as well as one-fifth of direction for each division.
Golâghât „ ..	250	2,534 0	464 0 6	5,702 11 3	6,735 2 7	10 1	344 11 5	The figures in column 8 are the average cost of 100 cubic feet, including the total expenditure of one division with one-fifth of direction added.
Total....	1,179	13,845 1	2,092 5 9	32,312 4 0	42,109 14 3	11 8	304 2 4	

FOREST DEPARTMENT, ASSAM.

Area of Reserved Forests in 1875-76.

Reserved Forests.		Area in 1874-75.	Added during the year.	Excluded or transferred to other heads.	Total remaining in 1875-76.
	RESERVES UNDER THE FOREST DEPARTMENT.	Square miles.	Square miles.	Square miles.	Square miles.
	Kámrup District.				
GAUHATI DIVISION	Barduar Sál forest	22·25	1·5	.....	23·75
	Pantan ditto	12	.....	.....	12
	Matiakhar ditto	3·5	.....	.....	3·5
	Kulsi plantation ditto	5·5	.....	.....	5·5
	Jara ditto	1·6	.....	.....	1·6
	Milmillia ditto	2·1	.....	.....	2·1
	Nowgong District.				
	Kholahat Sál forest	3	.....	.....	3
	Deboka ditto	0·81	.....	.....	0·81
	Darrang District.				
TEZPUR DIVISION	Ballpara forest	87·84	.....	.....	87·84
	Khalingduar forest	9·75	.....	.....	9·75
	Charduar Rubber plantation	.....	33·54	.....	33·54
	Bhamaraguri Hill	.....	0·6	.....	0·6
	Garumari	.....	0·32	.....	0·32
	Nága Hills District.				
GOLAGHAT DIVISION	Nambor forest	389·56	.....	.....	389·56
	Mikir Hill forest	65	.....	.....	65
	Godlpára District.				
GOALPARA DIVISION	Bijnidnar forest	.....	12·56	.....	12·56
	Chirangduar, No. 1 forest	.....	108·13	.....	108·13
	Ditto, „ 2 forest	.....	137·63	.....	137·63
	Ripuduar forest	.....	65	.....	65
	Gomaduar „	.....	24·65	.....	24·65
	RESERVES UNDER CIVIL OFFICERS.				
	Darrang District.				
	Charduar Rubber plantation	.....	46·46	.....	46·46
	Total	602 91	430·39	.....	1,033·30

FOREST DEPARTMENT, ASSAM.

Area of Unreserved Forest in 1875-76.

Unreserved Forests.		Area in 1874-75.	Added during the year.	Declared reserves during the year.	Total remaining in 1875-76.	REMARKS.
	Godlpára District.	Sqr. miles.	Sqr. miles.	Sqr. miles.	Sqr. miles.	
GOALPARA DIVISION	Bijnidnar	12·56	.....	12·56	.....	
	Silliduar	74·37	.....	.....	74·37	Gazetted as open forest.
	Chirangduar	245·76	.....	245·76	.....	
	Ripudnar	65	.....	65	.....	
	Gomaduar	24 65	.....	24·65	.....	
	Cachar District.					
CACHAR DIVISION	Within the Inner Line	336	.....	.....	336	Proposed as reserves.
	Beyond „	489	.....	.....	489	
	Sylhet District	278	.....	.....	278	
	Within Revenue Limits.					
CIVIL OFFICERS	Goálpára	8	.....	.....	8	Undefined forests, protected by the Deputy-Commissioners and the Political Agent, Nága Hills.
	Kamrúp	88	.....	1·5	81 5	
	Darrang	400	.....	80·92	319·08	
	Nowgong	52	.....	.....	52	
	Sibságar	335	.....	.....	335	
	Lakhimpur	2,500	.....	.....	2,500	
	Sylhet	27	.....	.....	27	
	Cachar	4	.....	.....	4	
	Beyond Revenue Limits.					
	Khási and Jaintiá Hills	150	.....	.....	150	
	Nága Hills	825	.....	.....	825	
	Lakhimpur	1,500	.....	.....	1,500	
	Cachar	11	.....	.....	11	
	Gáro Hills	.....	350	.....	350	
	Total	7,115·34	350	430·39	7,034·95	

FOREST DEPARTMENT, ASSAM.

Area of Plantations for the year 1875-76.

Name of Plantation.	Area in 1874-75.	Total cost.	Area added during 1875-76.	Amount expended during 1875-76.	Total area up to 1875-76.	Total expenditure incurred up to 1875-76.	REMARKS.
Gauhâti Division.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Kulsi plantation—							
Caoutchouc..	35	983 11 0	30	512 8 9	65	1,496 3 9	
Teak	53	4,041 15 11	20	1,360 12 6	73	5,402 12 5	
Sisu	20	789 7 5	....	74 1 9	20	863 9 2	
Tezpur Division.							
Chardnar Plantation—							
Caoutchouc..	180	3,762 8 0	140	3,293 5 2	320	7,055 13 2	
Bamuni Hill Plantation—							
Caoutchouc..	10	549 11 3	....	217 14 0	10	767 9 3	
Goâlpâra Division.							
Makoom plantation—							
Teak	4	1,128 7 6	....	97 6 3	4	1,225 13 9	
Civil Officers.							
Shillong timber plantation ..	4½	400 0 3	4	342 9 6	8½	742 9 9	
Nungklao cinchona plantation	13	320 0 0	....	352 0 0	13	672 0 0	
Total ..	308½	11,975 13 4	194	*6,250 10 0	502½	18,226 7 4	

* The difference of Rs. 730-9-6, between this figure and the amount shown under "A. IV. 2., Plantations," in the summary of expenditure, Rs. 6,981-3-6 is the cost of sowing and planting on separate pieces of land, carried out chiefly with a view of securing a water-supply for the station of Shillong, in the Khási Hills.

FOREST DEPARTMENT, ASSAM.

Area of Forest Tracts protected from Fire during 1875-76.

Forests.		Area of forest.	Total expenditure previous to 1875-76.	Area burned in 1875-76.	Area not burned in 1875-76.	Expenditure during the year 1875-76.	Total expenditure incurred up to end of the year 1875-76.
	Kámrúp District.	Acres.	Rs. As. P.	Acres.	Acres.	Rs. As. P.	Rs. As. P.
GAUHATI DIVISION	Bardwar reserve	15,200	445 6 0	.....	15,200	353 1 6	798 7 6
	Pantan „	7,680	265 1 0	80	7,600	182 13 3	447 14 3
	Matiakhar „	2,240	89 4 0	.....	2,240	167 10 9	256 14 9
	Kulsi plantation reserve	3,520	114 0 0	2,000	1,520	122 15 9	236 15 9
	Jara reserve	1,040	78 4 0	.....	1,040	79 12 0	158 0 0
	Milmillia reserve....	1,400	75 0 0	1,380	20	89 2 0	164 2 0
	Nowgong District.						
	Kholahat reserve....	1,920	104 9 0	12	1,908	.....	104 9 0
	Deboka „	520	.....	.....	520	7 0 0	7 0 0
	Darrang District.						
TEZPUR DIVISION	Balipara reserve	581½	33 14 0	5	576½	219 13 0	253 11 0
	Garumari „	50	14 0 0	.....	50	55 4 6	69 4 6
	Goâlpâra District.						
GOÂLPÂRA DIVISION ..	Sidli forests	15,716	.....	14,716	1,000	23 8 0	23 8 0
	Khási and Jaintia Hills.						
CIVIL OFFICERS.....	Shillong forests	3,618	76 5 0	18	3,600	122 0 0	198 5 0
	Total.....	53,485½	1,295 11 0	18,211	35,274½	1,423 0 9	2,718 11 9

FOREST DEPARTMENT, ASSAM.

Prosecutions for Breaches of Forest Rules during the year 1875-76.

DIVISIONS.	NUMBER OF PROSECUTIONS.		CONVICTIONS OBTAINED OR STILL PENDING.			
			Number of cases.		Number of persons	
	Number of cases.	Number of persons.	Convictions.	Pending.	Convicted.	Under trial.
Gauhâti Division.....	1	1	1	.....	1	.....
Golâghât „	3	7	3	.....	7	.....
Goâlpâra „	3	13	3	.....	13	.....
Civil Officers (Shillong open forests).....	10	25	8	.....	23	.....
Total.....	17	46	15	.....	44	.....

GUSTAV MANN,
Deputy-Conservator of Forests, Assam.

APPENDIX I.

Additions to the List of useful Trees growing in the Province of Assam.

Current Number.	Botanical Name.	Native Name.	Size of tree when full grown, in feet.	REMARKS.
1	Amoora spectabilis	Amari (true)	8 to 12 feet	Darrang district, lower hill forests. Wood, dark red; takes good polish; durable; used for boat-building and furniture.
2	Dysoxylum Hamiltonii	Gendelli Poma	12 to 15 „	Darrang district, lower hill forests. Wood, red, used for boats and planks; not very durable.
3	Beilschmiedia Roxburghiana	Serai Guti	6 to 8 „	Darrang district, lower hill forests. Wood durable, used for boats' building, and other purposes.
4	Garcinia xanthochymus	Tepur	3 to 4 „	All the districts of Assam, lower hill forests. Wood used for buildings and other domestic purposes; bark used for dyeing yellow; fruit eaten.
5	Albizzia procera	Karoi	4 to 6 „	Upper and Central Assam. Wood, blackish; durable; used for building and other domestic purposes.
6	Albizzia stipulata	Sow	6 to 8 „	Upper Assam, mixed plains forests Wood red, light and durable; used for boats, planks, furniture, and other domestic purposes.
7	Securinega obovata	?	2 to 3 „	Goálpára district, mixed plains forests. Wood durable; used for ordinary domestic purposes.
8	Cinnamomum cecidodaphne.....	Buddai Soom.....	3 to 4 „	Central Assam, lower hill forests. Wood soft and inferior. Moogah silkworm will eat the leaves, if nothing better can be had.
9	Pithecolobium bigeminum	?	3 to 4 „	Lower Assam, lower hill forests. Wood durable; dark, used for ordinary domestic purposes.
10	Vitex canescens	?	4 to 6 „	Kamrúp district, lower hill forests. Wood used for building and other purposes.
11	Phœbe glaucescens.....	?	3 to 4 „	Central Assam, lower hill forests. Wood soft and inferior.
12	Manglietia insignis	?	8 to 10 „	Khási Hills, upper hill forests, 6,000 feet. Wood used for ordinary purposes.
13	Cinnamomum pauciflorum	?	4 to 6 „	Khási Hills, upper hill forests, 4,000 feet; wood used for ordinary purposes.
14	Olea dioica.....	?	4 to 6 feet.	Lower Assam, lower hill forests. Wood good, used for building and other purposes.
15	Heynea trijuga.....	?	3 to 4 „	Goálpára district, lower hill forests. Wood used for ordinary domestic purposes.
16	Walsura robusta	?	6 to 8 „	Kámrúp district, lower hill forests. Wood used for ordinary domestic purposes.
17	Gynocardia odorata.....	?	3 to 4 „	Goálpára district, lower hill forests. Oil extracted from the seed. Wood used for ordinary domestic purposes.
18	Echinocarpus Assamicus	Jabba Hingori	4 to 6 „	Central Assam, lower hill forests. Wood soft; used for planks and other domestic purposes.
19	Phœbe sp.	Marili	4 to 6 „	Goálpára district, lower hill forests. Wood used for boats, but is inferior.
20	Excoecaria baccata	?	4 to 6 „	Kámrúp district, lower hill forests. Wood soft and inferior.
21	Cinnamomum Tamala	Dopatti	4 to 6 „	Goálpára district, lower hill forests. Wood inferior.
22	Zanthoxylum Rhetsa	Borjonally	6 to 8 „	Kámrúp district, lower hill forests. Wood soft and inferior.
23	Phœbe lanceolata	?	4 to 6 „	Kámrúp district, lower hill forests. Wood inferior.
24	Eugenia macrocarpa	?	4 to 6 „	Goálpára district, lower hill forests. Short in the bole. Wood inferior. Tree very ornamental.
25	Crataeva lophosperma	?	2 to 3 „	Goálpára district, mixed plains forests. Wood inferior.
26	Pithecolobium angulatum	?	3 to 4 „	Central Assam, lower hill forests. Wood inferior.
27	Elaeocarpus Varunus	Tuttoaly (Darrang) .. / Saul kuri (Goálpára)..	4 to 6 „	Darrang and Goálpára districts, lower hill forests. Wood soft and inferior.
28	Albizzia lucida.....	Mess-guch	4 to 6 „	Kámrúp district, lower hill forests, one of the trees on which the lac insect is reared. Wood inferior.
29	Dalbergia stipulacea..	?	3 to 4 „	Goálpára district, lower hill forests. Wood inferior.
30	Chisocheton paniculatus	?	3 to 4 „	Lower Assam lower hill forests. Wood inferior; used for ordinary domestic purposes.
31	Buchanania grandis	?	6 to 8 „	Central Assam, lower hill forests. Wood soft and inferior.
32	Ilex Godajam	Tirsau	4 to 6 „	Goálpára district, lower hill forests. Wood used for ordinary purposes.
33	Croton oblongifolius	Burma.....	3 to 4 „	Goálpára district, lower hill forests. Wood used for ordinary purposes.
34	Mallotus philippinensis.....	Puddum	2 to 3 „	Goálpára and Darrang districts, mixed plain forests. Wood inferior; red colour from fruit used for dyeing.
35	Aesculus Assamica	Kunkir-kola ..·····....	3 to 4 „	Goálpára district, lower hill forests and river banks. Wood inferior.

Current number.	Botanical Name.	Native Name.	Size of tree full grown, in feet.	Remarks.
36	Meliosma simplicifolia	Dibru	3 to 4 feet.	Goálpára district, lower hill forests near watercourses. Wood inferior.
37	Baccaurea sapida	Latecku	2 to 3 „	The bark is commonly used for dyeing black. Fruit eaten. Wood inferior.
38	Premna mucronata	?	3 to 4 „	Lower Assam, mixed plains and lower hill forests. Wood used for ordinary domestic purposes.
39	Macaranga pudica	Modala	2 to 3 „	Goálpára district, mixed plains forests. Only fit for firewood
40	Diospyros variegatus	?	4 to 6 „	Kámrúp district lower hill forests. Wood used for ordinary purposes.
41	Spondias mangifera	?	2 to 3 „	Goálpára district, mixed plains forests Wood inferior, fit for nothing but firewood.

APPENDIX II.

REGISTER OF RESERVED FORESTS IN THE PROVINCE OF ASSAM, ADDED DURING 1875-76.

GAUHATI FOREST DIVISION.

KÁMRÚP DISTRICT.

VIII. THE SECOND ADDITION TO THE BARDUAR RESERVE.—Notified in the *Assam Gazette* of the 10th April, 1875, page 206, situated immediately east of the Barduar reserve, and adjoining it.

(1.) *Area.*—1·5 square miles, or 960 acres.

(2.) *Boundaries.—North.*—The cultivated lands of the village of Barosala.

East.—The foot of the Ghagorachok Hill from the cultivated lands of Barosala to the Mureea Nadi; thence up the latter stream to a point nearest to the Barduar forest reserve.

South and West.—A straight line running east and west from the Mureea Nadi to the Barduar forest reserve, and the eastern boundary of the latter.

(3.) *Soil.*—About half of it is a hill of granitic formation, with sandy loam of sufficient depth on the surface to produce superior growth of trees. The other half is level land, also chiefly sandy loam, with vegetable mould on the surface.

(4.) *Description of forest.*—Like the rest of the Barduar reserve, the trees are chiefly Sâl, with lower hill forests occupying the banks of the rivulets on the hilly portion. On the level land it is either exclusively Sâl, or, especially at the southern extremity, grass only, which was included partly to secure a natural boundary and partly for extension of Sâl, which spreads naturally if the fire is kept out.

(5.) *Timber-depôt.*—At Kukurmara, on the Kulsi River, at the crossing of the Assam Trunk Road.

(6.) *Timber-markets.*—The towns of Gauháti and Goálpára can be supplied; beyond the Province, Serajganj and Dacca, from where timber-traders come as far as Kukurmara to buy timber.

(7.) *Lines of export.*—The Bata, Kulsi, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of four inches to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Gauháti Forest Division.

(11.) *Working plan.*—The detailed examination of this reserve for the preparation of a preliminary working plan will be carried out simultaneously with the rest of the Barduar reserve.

TEZPUR FOREST DIVISION.

DARRANG DISTRICT.

III. THE BHAMARAGURI HILL RESERVE.—Notified in the *Assam Gazette* of 31st July, 1875, page 402, situated on the north bank of the Brahmaputra River, and four miles above, or east of Tezpur :—

(1.) *Area.*—0·6 square miles, or 386 acres.

(2.) *Boundaries.—North and West.*—Base of the Bhamaraguri Hill.

South.—The River Brahmaputra.

East.—A suti of the Bhairabi River.

(3.) *Soil.*—Loam resting on granitic rock.

(4.) *Description of forest.*—Inferior lower hill forest, and mixed plains forest. Part of it has been under tea-cultivation, which was discontinued, and the forest growth on this portion is comparatively young.

(5.) *Timber-depôt.*—The trees growing are cut for firewood only, which is stacked at Tezpur for the use of the Government steamers.

(6.) *Timber-markets.*—None of the wood is sold, but reserved exclusively for the use of Government steamers.

(7.) *Lines of export.*—The Brahmaputra River.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map of the reserve of four inches to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the Office of the Tezpur Forest Division.

(11.) *Working plan.*—This forest was re-purchased by Government from its owner more with a view of securing the site than for the sake of the forest on it, but as it so happens

that a certain amount of firewood is required by the Government steamers, and this reserve being only four miles from one of the places (Tezpur) where steamers can conveniently stop to take in firewood, the forest growth in this reserve is protected by not allowing it to be cut for any other purpose than firewood, and conserved by only allowing trees of and above 3 feet in girth, measured 4 feet above the ground, to be felled. No improvement of this forest is intended, since the soil is inferior, and large areas of better forest (Charduar and Nowduar) have been made reserves, on which any funds granted for the improvement of forests in the Darrang district will be spent more advantageously.

IV. THE GARUMARI SAL FOREST.—Notified in the *Assam Gazette* of the 11th December, 1875, page 648, situated about seven miles north of Tezpur, and one mile east of the Balipara road.

(1.) *Area.*—0·32 square miles, or 205 acres.

(2.) *Boundaries.—North.*—The southern boundary of a grant of waste land, No. 2, belonging at present to the Agra Bank.

East.—A survey line running in a south-easterly direction from the south-east corner of grant No. 2, to the junction of a small stream with the Mara Bhairabi River.

South.—The Mara Bhairabi River, and a survey line running from the latter due west, and measuring 1,255 feet in length.

West.—A survey line running due north from the south-western corner of the reserve to the southern boundary of grant No. 2, and measuring 8,701 feet in length.

(3.) *Soil.*—Alluvial, chiefly sand, with vegetable mould on the surface.

(4.) *Description of the forest.*—Almost pure Sâl on 50 acres, the remainder, or 155 acres, is grass-land. All trees are young, since this forest was resorted to for the cutting of firewood until two or three years ago, when this practice was stopped. The growth of the trees is healthy and vigorous, considering the forest was burnt annually until 1874-75. Seedlings are plentiful all through the forest, and there is no doubt that it will spread naturally if the fire is kept out.

(5.) *Timber-depôt.*—At Tezpur, on the Brahmaputra River.

(6.) *Timber-markets*—The towns of Tezpur and Gauháti.

(7.) *Lines of export.*—The Mara Bhairabi and the Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of eight inches to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Tezpur forest division.

(11.) *Working plan.*—The Garumari Sâl forest will be included in the working plan of the Balipara Sâl forest. Both the forest, as well as the grass land, are to be strictly protected against fire, and all creepers and useless trees, where the latter interfere with the growth of Sâl, are to be cut once a year.

V. THE CHARDUAR RUBBER PLANTATION RESERVE (EAST OF THE DIPOTA RIVER.)—Notified in the *Assam Gazette* of the 29th January, 1876, page 91, situated between the Dipota and Mansiri Rivers, immediately at the foot of the Aka Hills, and about eighteen miles north of Tezpur.

(1.) *Area.*—33·54 square miles, or 21,465 acres.

(2.) *Boundaries.—North.*—The line fixed by the British Boundary Commissioners between Bhutan and Aka Hills and British territory, from the Dipota River, on the west to Mansiri River, on the east.

East.—The Mansiri River, from the point where it enters British Territory to a point marked A, situated about a mile (more or less) from the confluence of the Kher Kola Koli with the Mansiri.

South.—A straight line running due west from the point marked A, on the Mansiri River, through the southern side of the Moran Pukri, to a point marked B, on the Dipota River.

West.—The Dipota River, from the point B upwards to the point where it enters British territory.

(3.) *Soil.*—The soil is almost entirely alluvial, with rich and deep vegetable mould on the surface. The high land in the southern portion consists of a rich loam.

(4.) *Description of the forest.*—A very dense lower hill forest, with the Caoutchouc tree (*Ficus elastica*) very frequent in it.

(5.) *Timber-depôt.*—The reserve has been selected chiefly with a view of planting Caoutchouc trees, but any timber felled in this forest, and worked out, is brought to the Bhairabi ghat or the Tezpur timber-depôt.

(6.) *Timber-markets.*—The Darrang district generally, and the towns of Tezpur and Gauháti; also, it is hoped, hereafter, beyond the Province, of Serajganj and Dacca.

(7.) *Lines of export.*—The Dipota, Mansiri, Bhairabi and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Tezpur Forest Division.

(11.) *Working plan.*—The Charduar Caoutchouc plantation started in the eastern portion of this reserve is to be extended annually by 200 to 300 acres. This is done by cutting lines, forty feet in width and 100 feet apart, through the forest from east to west, and planting these lines with Caoutchouc trees. Any of the better kinds of trees felled on these lines are worked out and brought into depôt, wherever this can be done sufficiently cheap to make such works remunerative. There is no danger from fire, and all this forest requires in the way of protection is the watching of the people to prevent them starting jhooms in it.

GOALPARA FOREST DIVISION.

Goálpára District.

I. The Bijni Duar Reserve.—Notified in the *Assam Gazette* of the 20th November, 1875, page 606, situated immediately at the foot of the Bhutan Hills.

(1.) *Area.*—12·56 square miles or 8,039 acres.

(2.) *Boundaries.—North.*—Bhutan frontier.

South.—The boundary of Khairbana mouzah.

East.—The boundary of Khairbana mouzah.

West.—The Kukolung Nadi.

(3.) *Soil.*—The soil consists chiefly of sand, mixed with vegetable mould, especially on the surface, and sometimes with loam or clay, and is the deposit of decomposed rock and earth washed out of the Himalayas.

(4.) *Description of the forest.*—Chiefly Khair, mixed here and there with other trees, such as compose the mixed plains forests.

(5.) *Timber-depôt.*—None at present.

(6.) *Timber-markets.*—Bilasupara and Bogribari, and, beyond the Province, Serajganj and Dacca.

(7.) *Lines of export.*—The Kukolong, Manas, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Goálpára Forest Division.

(11.) *Working plan.*—The detailed examination, survey, and mapping, on a scale of four inches to one mile, of this reserve will be carried out after this work has been completed in the Sâl forests comprised within the Goálpára Forest Division. Until that time simple protection against illegal felling and fire, when the forest establishments in this division have been increased.

II. The Chirang Duar Reserve.—Notified in the *Assam Gazette* of the 20th November, 1875, page 606, situated immediately at the foot of the Bhutan Hills, and between the Bara Bhur Nadi on the east, and the Polo and Gangea Nadies in the west.

First, or Eastern Part.

(1.) *Area.*—108·13 square miles, or 69,205 acres.

(2.) *Boundaries.—North.*—The Bhutan frontier.

South.—Boundary Sidli Duar.

East.—By the Bara Bhur Nadi for some distance, then along the southern boundary of Bhumigaon Jhar mouzah in a westerly direction, and then along the Champamati River.

West.—The Sowmaka Nadi and the western boundary of Lymati Jhar mouzah.

(3.) *Soil.*—Alluvial deposits, rich vegetable mould on the surface, in those parts where the lower hill forests exist.

(4.) *Description of the forest.*—The greater portion, especially towards the north and the foot of the hills, consists of lower hill forest; further away from the hills it is mixed plains forest; and in the south and west considerable areas are covered with Sâl, but only very few trees about five feet in girth remain.

(5.) *Timber-depôts.*—Tilukgaon, on the Champamati River, and Kukrajhar, on the Gourang River.

(6.) *Timber-markets.*—Tilukgaon, Kukrajhar; Bilasupara; and Bogribari; beyond the Province, Serajganj and Dacca.

(7.) *Lines of export.*—The Champamati, Gourang, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Goálpára Forest Division.

(11.) *Working plan.*—The detailed examination of the Sâl forests will be taken in hand after this work has been completed in the Goma reserve. Until then, the felling of Sâl is restricted to trees measuring five feet and more in girth four feet from the ground. The remainder of the forests will receive simple protection against illegal felling of timber, and cultivation being started in them. Fellings of those kinds of trees for which there is a demand will be restricted to trees of and above four feet in girth, measured four feet from the ground.

SECOND, OR WESTERN PART.

(1.) *Area.*—137·63 square miles, or 88,088 acres.

(2.) *Boundaries.—North.*—The Bhutan frontier.

South.—The southern boundary of Jonagaon mouzah; then along the Hail Nadi in a northerly direction, along the southern boundary of Singmai Janee mouzah down the Saralbhanga River for a short distance, and through Gobdagaon Aphal mouzah, as demarcated by the Revenue Survey.

East.—The Sowmaka Nadi and west boundary of Lymati Jhar mouzah, which is also the eastern boundary of Kochu Bari Jhár, Totpara mouzah.

West.—The Polo and Gangea Nadies and the western boundary of Janagaon Salbari mouzah.

(3.) *Soil.*—Alluvial deposits, chiefly sand, in some parts sandy loam; richest towards the hills, poorest in the Sâl forest,—in the latter there is generally a subsoil consisting of gravel. The soil on the banks of the Hail Nadi, where the Khair and Sisu forests exist, is little else but sand, shingle, and gravel.

(4.) *Description of the forest.*—About half of it is Sâl, the remainder chiefly lower hill and mixed plains forest. On the banks of the Hail and Saralbhanga Rivers, small areas of Khair and Sisu forest exist.

(5.) *Timber-depôts.*—Are being selected at present.

(6.) *Timber-markets.*—Kukra Jhar, Bilasupara, and Bogribari; beyond the Province, Serajganj and Dacca.

(7.) *Lines of export.*—The Saralbhanga, Hail, Gangea, Gorapala, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one mile to one inch is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Goálpára Forest Division.

(11.) *Working plan.*—The detailed examination, survey, and mapping of the Sâl forests will be carried out at the same time, this is done in the Sâl forests existing in the first or eastern part of the Chirang Duar reserve, and after this work has been completed in the Goma reserve. Meanwhile the felling of Sâl-trees will be restricted to trees of five feet and more in girth, measured four feet above the ground; and fire-protection be commenced in the Sâl, Sisu, and Khair forests, after the present permanent establishment is increased. The felling of all other kinds but Sâl will be restricted to trees measuring four feet and more in girth, four feet above the ground.

III. THE RIPU DUAR RESERVE.—Notified in the *Assam Gazette* of the 20th November, 1875, ge 606, situated immediately at the foot of the Bhutan Hills and west of the Cherang reserve, which adjoins.

(1.) *Area.*—Sixty-five square miles, or 41,635 acres.

(2.) *Boundaries.—North.*—By the Bhutan frontier.

South.—By the main road; then down the Jakati Nadi, to the southern boundary of Notogaon Jhar mouzah; along that boundary to the Pekua Nadi, up that stream to the point where it meets the Kochugaon Jhar mouzah boundary; and along that boundary to the Gungea River.

East.—The Polo and Gungea Nadies and the western boundary of Janagaon, Salbari mouzah, which is also the eastern boundary of Kochugaon Jhar.

West.—The Ranga, or Jakati Nadi.

(3.) *Soil.*—Alluvial deposits, chiefly sand, mixed with vegetable mould, and in some parts with loam or clay.

(4.) *Description of forest.*—About one-fourth is Sâl forest, but all trees above five feet in girth have been worked out. The Sâl exists mainly in the southern part of the reserve, is healthy and vigorous, and not much intermixed with other kinds. The remainder of the reserve consists of mixed plains and lower hill forests, and a small portion in the southern extremity is grass-land.

(5.) *Timber-depôt.*—Is being selected now.

(6.) *Timber-markets.*—Bogribari; beyond the Province, Serajganj and Dacca.

(7.) *Lines of export.*—The Pekua, Gungea, Garopala, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to one mile is filed in the office of the Deputy-Conservator of Forests, Assam, and in the office of the Goálpára Forest Division.

(11.) *Working plan.*—The detailed examination survey and mapping of the Sâl forests in this reserve will be commenced after this work has been completed in the Cherang Duar reserve. The felling of Sâl will be entirely prohibited, since no mature trees remain in the forest. Fire-protection will here also have to be deferred until the permanent establishment in this division is strengthened. The felling of other kinds will be restricted to trees of four feet and more in girth, measured four feet from the ground.

IV. The Guma Duar Reserve.—Notified in the *Assam Gazette* of the 20th November, 1875, page 606, situated near the western limit of the Goálpára district, and about twenty-two miles north of Dhubri.

(1.) *Area.*—24·65 square miles, or 15,779 acres.

(2.) *Boundaries.—North.*—By high land, as demarcated by the Revenue Survey.

South.—Murshong Jhora and pergunnah Parbat Joar.

East.—The Tepkai Jhora and pergunnah of Parbat Joar.

West.—The Bownye Nadi.

(3.) *Soil.*—Loam mixed with decomposed quartz, and other stone resting on a sub-soil of gravel and boulders; vegetable mould covers the surface. Nearly the whole of the reserve consists of a plateau raised about thirty feet above the general level of the low land of the district.

(4.) *Description of the forest.*—These forests are exclusively Sâl, of very fair growth, and in some parts even very vigorous, but all mature trees were removed long since. Seedlings are plentiful, and nothing more is required to get the whole area completely stocked with Sâl than to keep the fires out. Creepers prevail in some parts, but are not excessive, and can easily be got under. Although no large-sized trees remain, the forest is very much the better for the protection it has received since 1868.

(5.) *Timber-depôts.*—These are being selected.

(6.) *Timber-markets.*—Suriamukh, Bogribari; beyond the Province, Serajganj and Dacca.

(7.) *Lines of export.*—Bownye, Gadadhar, Tapkai, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one mile to one inch is filed in the office of the Deputy-Conservator of Forests, Assam, and one in the office of the Goálpára Forest Division.

(11.) *Working plan.*—The survey, valuation, and mapping, on a scale of four inches to one mile, will be taken in hand as soon as this work in the Sidli forest is completed. Fire-protection will be commenced in 1877-78. All felling of Sâl is prohibited, but all dead wood is to be worked out at once. The cutting of creepers and useless trees, where the latter interfere with the growth of Sâl, is to be done every year.

RESERVES UNDER CIVIL OFFICERS.

Darrang District.

I. The Charduar Rubber Plantation Reserve (east of the Dipota River).—Notified in the *Assam Gazette* of the 29th January, 1876, page 91, situated between the Belsiri and the Dipota Rivers, immediately at the foot of the Aka Hills, and about eighteen miles north of Tezpur.

(1.) *Area.*—46·46 square miles, or 29,735 acres.

(2.) *Boundaries.—North.*—The line fixed by the British Boundary Commissioners between Bhutan and Aka Hills and British territory, from the Belsiri River, on the west, to the Dipota River, on the east.

East.—The Dipota River, from the point where it enters British territory to a point marked C.

South.—A straight line running due west from the point marked C, on the Dipota River, to a point marked D, on the Belsiri River.

West.—The Belsiri River, from the point marked D, upwards to the point where it enters British territory.

(3.) *Soil.*—Alluvial, with rich and deep vegetable mould on the surface.

(4.) *Description of the forest.*—Very dense lower hill forest, with the Caoutchouc-tree (*Ficus elastica*) very frequent in it.

(5.) *Timber-depôt.*—This reserve has been selected chiefly with a view of planting Caoutchouc-trees, and no timber operations will be carried on in it for the present.

(6.) *Timber-markets.*—Any timber which may hereafter be worked out of this forest can be sold either in the Province, or be exported to the timber-markets in Bengal, such as Serajganj and Dacca.

(7.) *Lines of export.*—The Dipota, Belsiri, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to one mile is filed in the office of the Chief Commissioner, and another in the office of the Deputy-Conservator of Forests, Assam.

(11.) *Working plan.*—The Charduar Caoutchouc plantation, started in that portion of this reserve situated east of the Dipota River, will be extended in this forest after all the land east of the Dipota has been planted out.

APPENDIX III.

Statement showing the results of Forest Valuation Surveys in the Sidli Forests, Goalpára District, Assam.

No.	Position of line of Survey.	NUMBER OF TREES COUNTED.								AREA SURVEYED IN ACRES.				REMARKS.
		SAL.				CHELANI.								
		I.	II.	III.	IV.	I.	II.	III.	IV.					
		Under 1 cubit.	From 1—2 cubits.	From 2—3 cubits.	From 3—4 cubits.	Under 1 cubit.	From 1—2 cubits.	From 2—3 cubits.	From 3—4 cubits.	Sál forest.	Lower hill forest.	Grass-land.	Total.	
1	From Adubgaon village lands, going north to boundary of forest.	B	610	114	2	....	....	....	1	21·72	....	1·58	23·30	Grass-land, and then saplings much burned, getting better towards the north, with poles and young high forest.
	From Abulgaon village lands, going south to boundary of forest.	C	2,053	885	18	....	8	2	3	52·32	4·28	32·80	89·40	High forest, intersected by much grass-land, and gets very bad towards line No. 13, thence poles and high forest. The growth is scanty to the south, with much grass and lower hill forest.
2	From line No. 5, in the north, to southern boundary of the forest.	B	3,293	389	11	....	1	....	....	70·24	9·50	31·28	111·02	Grass-land and lower hill forest for a quarter-mile, then well-growing poles, bounded by grass-land to the north of village lands, then good poles interrupted by grass land. High forest to south of line No. 13.
3	Ditto ditto ..	C	2,563	257	19	....	14	12	10	67·63	22·82	35·41	125·85	For quarter-mile grass and scattered Sál, then good poles and one mile of grass to village land. Beyond this, two miles of good poles, followed by grass-land and lower hill forest.
4	Ditto ditto ..	C	3,010	315	29	....	8	20	14	53·90	25·00	1·90	80·80	Fine high forest for quarter-mile, then good poles to line No. 7. High forest on rest of line to Gourang, with strips of lower hill forest.
	From Sowmaka River to Gourang River, west to east, as in map.	C	540	156	4	....	11	6	2	14·06	4·13	25·68	43·87	To Bismari River, close-growing Sál, beyond scattered Sál, in patches with much grass-land.
5	From village land of Adubgaon, west to east, to Gourang River.	C	1,430	180	6	....	11	17	1	33·60	6·09	4·06	43·75	To Bismari River, much grass and scattered Sál then good young high forest, and poles to 1½ miles from Gourang River, where there is much grass.
	From village land of Khetiguri, east, to Gourang River.	C	1,000	169	1	....	2	8	..	14·00	1·60	7·00	22·60	One-third mile grass, then one-fourth mile young Sál, then grass for one furlong, and beyond good poles and young high forest to Gourang River.
8	From village land of Abulgaon to hat of Khetiguri, and thence, east, to the Gourang River.	A	900	124	6	....	2	2	2	29·81	1·69	2·04	33·54	From Abulgaon to Khetiguri close-growing poles, then saplings and seedlings to Gourang River.
9	From Sowmaka River, east, to Gourang River.	A	2,960	397	2	....	2	7	....	56·76	2·86	2·98	62·60	From Sowmaka River to Mithagaon, thin forest, then close poles and saplings to Gourang.
10	Ditto ditto .	B	1,980	128	5	....	1	....	....	35·54	6·16	15·98	57·68	For 1½ miles strips of high forest in grass-land, then fine young poles and high forest, improving towards Gourang Nadi.
11	Ditto ditto ..	B	1,730	275	7	....	4	....	....	40·40	5·28	11·82	57·50	Two miles of fine high forest, with one patch of grass, beyond much lower hill forest and grass-land, and little Sál.
12	Ditto ditto ..	A	1,060	198	12	....	2	....	....	29·54	....	9·82	39·36	Poles well stocked and seedlings, then after half-a-mile patchy and bad for half-a-mile; thence good poles and saplings to line No. 8, and then grass-land.
13	Ditto ditto ..	B	1,094	229	5	....	4	10	2	26·76	5·94	11·30	44·00	High forest to grass, as in map, then poles, and high forest to path, and then poles and saplings to Gourang.
	Total ..	....	24,198	3,298	127	....	68	79	85	546·27	95·85	193·60	835·22	
	Contents of Forest ..	....	4,55,232	62,057	2,390	....	1,185	1,486	658	10·279	1,794	3,643	15·716	

NOTE.—A denotes abundant seedlings.
B „ disseminated.
C „ scanty.

W. R. FISHER,
Assistant-Conservator of Forests, Goalpára Division.

APPENDIX IV.

Statement showing the result of an Examination of the concentric rings of twenty Sâl-trees in the Sidli Forests, Goálpára District, Assam.

No. of Tree.	Average radius, including sap-wood.	Average radius of heart-wood.	Number of concentric rings in radius, including sap-wood. From centre: To 2·86 inches.	To 5·73 inches.	To 8·6 inches.	Total.	Number of concentric rings in heart-wood only.	Length of stem.
	inches.	inches.						feet.
1	9·17	7	28	54	102	120	67	17
2	9·00	5·38	34	72	99	104	67	30
3	8·65	6·10	25	46	65	65	47	42
4	8·15	5·40	30	58	.....	74	56	42
5	7·75	6·00	28	53	.....	89	56	19
6	7·37	6·25	30	62	.....	85	71	16
7	7·25	5·55	31	57	.....	74	54	33
8	7·20	5·37	19	39	.....	47	36	32
9	7·03	4·44	27	46	.....	61	41	39
10	6·87	5·20	33	52	.....	64	46	.....
11	6·65	3·75	20	38	.....	43	26	.....
12	6·37	4·62	36	69	.....	74	56	36
13	6·35	4·85	26	52	.....	59	45	32
14	6·25	2·25	25	37	.....	38	26	20
15	6·25	4·9	35	54	.....	70	54	26
16	6·20	4·5	30	53	.....	59	46	30
17	6·15	4	21	40	.....	42	32	35
18	6·13	4·7	33	59	.....	68	52	24
19	5·75	4·3	23	43	.....	44	34	30
20	5·75	3·75	27	47	.....	47	33	18
	Average		28	52	89	.....	.....	.....

W. R. FISHER,
Assistant-Conservator of Forests, Goálpára Division.

APPENDIX V.

Consumption of Tea-boxes in the Province of Assam in 1875.

Number of tea-boxes imported by the India General Steam Navigation Company into Assam Proper.	Number of tea-boxes imported by the Rivers Steam Navigation Company into Assam Proper.	Total of tea-boxes imported into Assam Proper.	Boxes of tea exported by the India General Steam Navigation Company from Assam Proper.	Boxes of tea exported by the Rivers Steam Navigation Company from Assam Proper.	Total tea exported from Assam Proper.	Number of tea-boxes imported by the India General Steam Navigation Company into Sylhet and Cachar.	Boxes of tea exported by the India General Steam Navigation Company from Sylhet and Cachar.
From Calcutta.	*From Calcutta.*				*Chests.*		*Chests.*
77,464	4;116	1,35,718	99,983	37,119	1,37,102	6,443	54,381
From Kushtia and Goalundo.	*From Kushtia.*						
23,407	30,731	.....	.....	.....	.....	.....	.....
Total ...1,00,871	34,847	1,35,718	99,983	37,119	1,37,102	6,443	54,381

NOTE.—Average quantity of tea packed in one box is 90 lb.
Cost of teak-wood boxes, including freight from Burma, is in Calcutta, Re. 1-5 each.
Cost of cedar-wood boxes ditto ditto „ 1-4 „

Extract from the Proceedings of the Chief Commissioner of Assam in the Revenue Department, dated 6th September, 1876.

READ—

Progress Report of Forest Administration of the Province of Assam, for the year 1875-76.

RESOLUTION.

THE Chief Commissioner has read with interest Mr. Mann's very careful report. It is, properly, much shorter than the report for 1874-75, which, being the first Report on Forest Administration in Assam, contained a large amount of information, which, once given, it was not necessary to reproduce in a subsequent report.

Paragraph 2.—The alteration of the boundaries of the Nowgong, Sibságar, and Nága Hills districts, so as to bring the entire forest division of Golághát within the latter district, was a measure adopted with a view to simplifying the management of this division. This result, Colonel Keatinge understands, has been obtained.

Paragraph 4.—The revised Forest Rules alluded to by the Deputy-Conservator have been approved of by the Government of India. The Chief Commissioner trusts that the adoption of these rules will conduce in no slight measure to the better management of the Assam forests. They are specially designed to associate civil officers and mouzahdars with the Forest Department in the management of our large reserves, which are necessarily at present very unproductive.

Paragraph 8.—The completion of the inspection of the Assam forests is a matter for congratulation. Until this inspection had been completed, it was a matter of some difficulty to carry out measures of conservancy on a large scale.

Paragraph 13.—At some future period, when communications in the Gáro Hills are more opened out, the sâl forests in the interior and the southern parts of the hills may still, by sawing the wood in the forest, become very valuable property; and their proper conservancy is a matter of much importance.

Paragraph 16.—It may be possible in time to wean the Gáros from their present system of jhooming; but, as Mr. Mann says, it will be necessary to proceed with great caution. The Gáros have given up other habits, to which they were apparently as strongly wedded; but these habits were not connected with their daily supply of food. Any radical alteration of their system of agriculture must be a work of many years; but it may be possible to restrict their jhooming operations to lands which have been cultivated within the last ten to fifteen years, and to exclude them from the forests of older growth.

Paragraph 18.—It is apparent that, even now, the forest conservancy of this Province is of vital importance to Eastern Bengal. Before very long, Assam timber will be a necessity in the great cities of the Eastern Delta.

Paragraph 21.—The marked rise in the market-value of timber since 1865 is not altogether a matter for satisfaction, as it has resulted mainly from a decreased supply, owing to excessive fellings.

Paragraphs 24—25.—Now that the inspection of the Gáro Hills forests is over, the Chief Commissioner hopes that it may be possible to put a check on the indiscriminate felling of the trees. The question will form the subject of a separate communication to the Deputy-Conservator. It will, probably, be necessary to impose a fixed general tax on the cutting of bamboos, in place of the variable duty now levied.

Paragraphs 28—29.—Colonel Keatinge agrees with Mr. Mann in thinking that fire-protection in the Gáro Hills will be an easier matter than it at first appears. People who have some idea of the benefit resulting from fire-protection will be more apt pupils than those who have none. The appreciation by the Gáros of the necessity for conserving the mixed lower hill forests is a most hopeful sign. To have successfully impressed this necessity on the Gáro mind is not the least useful work that Captain Williamson has done in these hills. The Chief Commissioner quite sees the desirability of declaring these forests to be a reserve; but he fears that the work of demarcating and protecting them by a boundary-path will be a very costly operation.

Paragraph 32.—The destruction caused to the forests by fire during the dry season was most deplorable, but was in no wise attributable to any laxity of supervision on the

part of the forest officers. On the contrary; they appear to have made extraordinary exertions to save the forests. The year was an exceptional one, and it is not likely that such severe westerly winds will occur again for some time.

Paragraph 38.—Since it is known that sâl forests will spread naturally in the climate of Assam, if only protected from fire, there is no necessity to continue the experiment of planting out saplings. It is satisfactory, however, to learn that the experiment, so far as it has been carried out, has been completely successful.

Paragraph 40.—The Nowduar forest has now been gazetted as a reserve. The Akha Chief Midhi, however, retains certain rights within it, which will be accurately defined.

Paragraph 43.—The instance given by the Deputy-Conservator shows how necessary it is to keep incessant watch, so as to prevent the hill tribes encroaching on the Golághát forests. The Chief Commissioner is glad to see that the Sub-Assistant-Conservator in charge appears to be fully aware of this necessity.

Paragraphs 46—49.—The forests in the Eastern Duars are, perhaps, owing to their situation, the most valuable forests in the Province. But, on account of the hitherto almost utter absence of conservancy, they have been so worked out, that for very many years the revenue derived from them must be insignificant. These forests have now been gazetted as reserves, and it is hoped that they will rapidly improve.

Paragraphs 51—57.—The survey and demarcation of these reserves by the forest officers is a most important measure, and Colonel Keatinge notes with much satisfaction the good beginning made by Messrs. Fisher and D'Arcy. The valuations of growing material, now commenced, are most essential to the success of conservancy measures in these valuable reserves.

Paragraph 58.—The most strenuous exertions must be made to protect these reserves from fire. But the Chief Commissioner quite recognizes that, without a much larger establishment than he can give, fire-protection in the Eastern Duars presents considerable difficulty. These great plains of grass, from 6 to 10 feet in height, require proportionately wide fire-paths to secure the forest. The woodcutters who set fire to the grass should be prosecuted criminally for mischief; and the same procedure should be adopted with regard to hunters setting fire to the grass in the reserves,—and all hunters convicted of so doing should be at once deprived of their licenses to carry arms. If the Deputy-Conservator will address the Chief Commissioner generally on the subject of fire-protection in the Eastern Duars, the necessary orders will be given to the civil officers. It would, perhaps, be a good thing to insert some such clause as Mr. Mann proposes in the permits granted to the woodcutters. Patient teaching of the people is, as the Deputy-Conservator remarks, the only way in which damage to the forests from outside fires can be effectually prevented.

Paragraphs 60—61.—Colonel Keatinge hopes that much will be done during the present year to consolidate and render more complete the system of forest conservancy in Cachar. As yet, only a beginning has been made. The question of forest reserves in Sylhet is one of much difficulty, owing to the permanent settlement, and to other causes connected with the revenue administration in Sylhet. As soon as the claims of the mirasdars are satisfactorily disposed of, it is hoped that it will be possible to gazette some valuable reserves in that district.

Paragraphs 65—67.—Mr. Mann justly states that plantations are very expensive, and cannot, in our present financial position, be further extended; what exists only can be maintained. The most important of all the plantations is, certainly, the caoutchouc plantation in the Charduar. This must be not only kept up, but extended at all hazards

Paragraphs 79—82.—Of exotic trees, only those that it has been proved have done well should in future be planted.

Paragraph 85.—The Chief Commissioner believes that the mouzahdars are now becoming fully aware of their duties, with regard to forest conservancy. This is a very hopeful sign.

Paragraph 96.—The sooner all the dead sâl-wood is removed from the Eastern Duar forests, the better, as there is constant fear of fire during the operations.

Paragraph 98.—The account given by Mr. Fisher of the timber trade in the Goálpára district is most interesting.

Paragraph 102.—Colonel Keatinge attributes the fact that the tea-planters of Assam Proper find it cheaper to import tea-boxes from Calcutta than to purchase them locally, to the exorbitant cost of labour in the Brahmaputra Valley. This will only be corrected by improved communications with the outer world.

Paragraphs 104—109.—For some time yet, for the reasons given by Mr. Mann, the Forest Department in this Province must continue to be a spending department. But the Chief Commissioner has little doubt, but that all present expenditure will in the future be amply repaid, with interest. The large increase in the receipts over the receipts of the year 1874-75 is very satisfactory.

Paragraph 111.—Colonel Keatinge is glad to see that the Deputy-Conservator was able to make a prolonged tour, and to personally inspect most of the forest divisions.

Paragraph 112.—It is satisfactory to learn that there were no casualties among the elephants belonging to the department during the year. The Chief Commissioner hopes that Mr. Mann bears in mind what he said in his Resolution on the Progress Report on Forest Administration for 1874-75, as to the desirability of employing buffaloes instead of elephants. Colonel Keatinge is still of the same opinion as he then was.

Paragraphs 113—118.—Colonel Keatinge approves generally of the programme of work for 1876-77.

CONCLUSION.—In conclusion, the Chief Commissioner desires to tender his thanks to Mr. Mann and his subordinates, for the manner in which they discharged their several duties during the year under review. He notes with much pleasure the high terms in which Mr. Mann speaks of his subordinates. These officers have most important duties to perform, and they carry them out under great difficulties. Their charges being all new, they are not so well-lodged as they should be, and the newness of their stations makes them more unhealthy than older ones would be. Colonel Keatinge desires that much attention should be paid to securing healthy sites for, and sufficient clearance around, all the foresters' stations.

By order of the Chief Commissioner of Assam,

S. O. B. RIDSDALE,

Secretary to the Chief Commissioner of Assam.

No. 2,930.

COPY forwarded to the Deputy-Conservator of Forests, Assam.

No. 2,931.

COPY, with 400 copies of the report, submitted to the Government of India, in the Department of Revenue, Agriculture, and Commerce.

No.

COPY, with copy of the report, forwarded to the Deputy-Commissioner of

By order of the Chief Commissioner of Assam,

S. O. B. RIDSDALE,

Secretary to the Chief Commissioner of Assam.

SHILLONG:
The 6th September, 1876.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF ASSAM

FOR THE YEAR

1876-77.

By GUSTAV MANN,

DEPUTY-CONSERVATOR OF FORESTS, ASSAM.

SHILLONG:

PRINTED AT THE ASSAM SECRETARIAT PRESS.

1877.

No. 71A.

FROM GUSTAV MANN, ESQ.,

Deputy-Conservator of Forests, Assam,

TO THE SECRETARY TO THE CHIEF COMMISSIONER OF ASSAM.

Dated Shillong, the 28th August, 1877.

SIR,

I HAVE the honour to submit the Annual Administration Report of the Forest Department in Assam for 1876-77.

2. The final Statement of the Forest Receipts and Expenditure from the Civil Account Department has only reached me this day, hence the delay in the submission of the Report.

I have the honour to be,

SIR,

Your most obedient Servant,

GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN ASSAM,

For the year 1876-77.

By GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

INTRODUCTION.

IT has more than ever become evident during the year under notice that large areas covered with forest will have to be preserved to meet the requirements of this Province and of Eastern Bengal, and that now large areas of forests of which Government is the absolute proprietor, and to which no rights of other persons attach, can be set aside without causing inconvenience to anyone, whilst, if this measure be deferred, such forests would not only diminish greatly in value, but the difficulty of controlling them would be indefinitely increased, in consequence of artificial boundaries having to be established, where at present, with minor exceptions, natural boundaries can be chosen, such as streams, ranges of hills, public roads, and so forth. In the same way, compact forests can now be selected, whilst, if this measure be deferred, numbers of villages and other settled lands would be scattered in time through such forests, and make the introduction of conservancy much more irritating than it is at present.

It has also become evident that to carry out the protection of all the forests which ought to be secured intact for the State at present cannot be done by the Forest Department alone, and that Deputy-Commissioners, through the police, the mouzahdars, and other fiscal officers, must aid to bring about this most necessary undertaking.

That the fiscal officers would not carry out very actively the protection of forests in their charge without a material reward for their labour can also be easily understood, and, consequently, the Chief Commissioner has sought and obtained the sanction of the Supreme Government to the payment of 10 per cent. to mouzahdars on all forest revenue collected by them.

It is impossible to predict the extent of the advantage thus secured, but there can be no doubt that it is an advantage, and a very great one, and will probably be the commencement of a new era, as regards the preservation of those forests which cannot as yet be placed directly under the management of Forest officers.

CHAPTER I.

SUMMARY OF ADMINISTRATION.

Area and Boundaries.

2. The chief event in the forest administration of Assam during 1876-77 was the declaration of the Government reserves or State forests in the district of Cachar in accordance with the provisions of Section 2, Act VII. of 1865. These reserves were the following:—

Cachar division.

	Area. Square miles.
I.—The Upper Jiri Reserve, ...	24
II.— „ Lower „ „	14
III.— „ Barak „	67
IV.— „ Sonai „	18
V.— „ Katakhal „	80
VI.— „ Dhaleswari „	33
Total ...	236

3. Besides the above, the forest situated beyond the Inner Line, or between it and the Lushai country, has been declared a reserved forest, and is, although the Forest Act does not apply to that part of the district, well protected, inasmuch as the Inner Line Regulation, made under 33 Vic., Cap. 3, prevents ingress from the Cachar side without the permission of the Deputy-Commissioner, and, for the present at least, no danger to this forest from the Lushai country exists; in fact, there is no doubt that the preservation of this and other forests in the Cachar and Sylhet districts is greatly to be attributed to the neighbourhood of the Lushais and their raids, and that they have thus escaped the usual fate of forests in this part of India, where hundreds of miles disappear within a year or two before the reckless axe of the jhúming tribes. This forest has been notified with those named above as—

	Square miles.
VII.—The Inner Line Reserve, area	509

It is managed like the rest of the reserves, by the Divisional Forest officer, who, however, as regards this forest, stands under the orders of the Deputy-Commissioner of the district in all such matters as do not require a technical knowledge of forestry.

4. These large areas of forests have been secured against further encroachments and destruction, not, indeed, until many parts of them have been worked to excess; but still, with the protection which is now afforded them, they no doubt will rapidly improve, and the greatest dangers, *viz.*, their destruction by jhúming or their alienation by lease for permanent cultivation, have been staved off, for there is no doubt whatsoever that nothing short of demarcation and gazetting the areas intended to be preserved as State forests will effectually maintain them, since it is an object with both jhúming villagers, as well as tea-planters, to get virgin soil if they can; but, since the advantage thus obtained is but a temporary one, and would very soon come to an end, it must be obvious that it is best for the people at large to confine all breaking up of new land at present to those parts which are the least valuable as forests, or which from their position it is not intended to reclaim as forests,—and there is an abundance of land in the Cachar district lying waste at present and available for the extension of cultivation. General rules that land with valuable forest on it must not be settled are very well at first to start some sort of conservancy, but they will never secure permanent maintenance of forests.

5. The restrictions thus imposed are amply compensated by securing a permanent supply of wood, for which there is in Cachar, Sylhet, and some of the districts in Eastern Bengal, extreme necessity, since nearly all trade and intercourse of the people is carried on during the greatest part of the year by means of boats, the material for the building of which is almost exclusively obtained from these forests. Independently of this, the tea industry is developing fast, and without an ample supply of wood it would not continue to be as remunerative as it is at present, and, although in this Province it so fortunately happens that wood is as yet abundant, yet it is well known that in other tea-growing districts, such as Darjeeling for instance, the planters make already large and annually increasing demands on the Government forests for their firewood and charcoal.

6. The boundaries of the Cachar reserves are either all natural boundaries or the boundaries of grants and other settled lands, with the exception of the northern boundary of the Upper Jiri reserve, which was cleared for the entire length from the Digli to the Jiri river, and substantial boundary-mounds, with numbered posts of durable wood in each, erected all along the line at all prominent points, and so that one post can always be seen from the next. The line itself is 3 miles 1,701 yards in length, and was cleared to a width of 30 feet.

The grants adjoining the reserves are demarcated; but, as the way in which this is done is not considered substantial enough, boundary-mounds, as prescribed in this department, with numbered boundary-posts, are to be erected along all these boundaries, as described above. The demarcation of the northern boundary of the Alni grant adjoining the Lower Jiri reserve was thus carried out in the year under notice,—its length is 2 miles 449 yards.

Tezpur division.

7. In the Darrang district, the Nowduar forest, measuring 82 square miles, which had been managed directly by the Forest Department for some years past, was gazetted as a forest reserve, and forms part of the Tezpur forest division.

These additional reserves are shown in the prescribed tabular statement of area of reserved forests, and a short description is given in Appendix I.—Register of Reserves.

8. The Charduar Rubber plantation reserve (west of the Deputa river), noticed in para. 62 of last year's report as in charge of the Deputy-Commissioner, was, in accordance with Rule 6 of the new Assam Forest Rules, transferred to the direct management of the Forest Department in the Tezpur division.

The demarcation of the southern boundary of the Charduar Rubber plantation reserve, which is a survey line of about 18 miles in length, and running chiefly through dense lower hill forest, has been commenced. It is intended to construct a fair-weather road along the whole length, which is to serve both as the boundary and be the means of access to the Rubber plantation: it was opened out during the year up to the Moran Pokri, a distance of nearly two miles. The boundary-mounds on the southern boundary of the Balipara reserve were put in repair, and the whole boundary cleared as a fire-path.

Goálpára division.

9. The demarcation and valuation work in the Sidli forest, in the Goálpára district, was carried on vigorously during the year. Proposals to have this, the most valuable of all the Sâl forests, declared a reserve, were, since the end of the working season, submitted for the Chief Commissioner's approval. In addition to this, a fine young Sâl forest, situated south of the second or the western portion of the Cherang Duar reserve, was demarcated, and has since been proposed as an addition to that reserve.

Gauhâti division.

10. In the Gauhâti division, the more substantial demarcation, by numbered boundary-posts, of the Milmillia reserve was completed, and that of the Borduar reserve nearly so. The posts at the latter have not as yet been numbered, as it is intended to add a few more to make the demarcation complete, and what it should be.

Saipung forest.

11. The Saipung forest, notified in the *Assam Gazette* of 29th July, 1876, page 435, and extending over an area of 50 square miles, was also transferred under Rule 6 of the new Forest Rules from the Deputy-Commissioner of the Khási and Jaintiá Hills to the Forest Department, and is managed now by the Deputy-Conservator.

Gáro Hills.

12. The forests in the Gáro Hills, inspected in 1875-76, and which inspection was recorded in paras. 8 to 29 of last year's report, remain undemarcated, as fresh complications with the zemindars of the adjoining districts have arisen, which are still under consideration of the Supreme Government, and are not decided in court either as yet, and nothing can be attempted until these claims have finally been settled. The Deputy-Commissioner has had no leisure during the past season to attempt making any arrangements with those villagers who jhúm in the more valuable forests, so as to induce them to vacate such forests, neither does the Chief Commissioner consider that the social state of the Gáro Hills district makes it just now advisable to attempt the strict conservancy of those forests.

13. As regards the forests on the Tura range, the Deputy-Commissioner estimates that the cost of a boundary-path would be from Rs. 1,000 to Rs. 2,000, and thinks that this expenditure would have to be repeated annually. Besides this, many jhúms are said to be brought periodically under cultivation here, which tracts, however, it was not

intended to include in the demarcated forests to be permanently conserved on this range; and, as to the expenditure, although it would probably cost at the first opening out as much as is estimated, the subsequent expenditure in keeping open the path ought to be comparatively small. Under all circumstances, the maintenance of this forest is so important that it is well worth the expenditure, as soon as the people are so far advanced as to comprehend that the measure is one which would chiefly be undertaken for their benefit, and not with a view merely of increasing the revenue, for, as pointed out, the preservation of this forest is mainly advocated to maintain the running of the streams, the sources of which are situated in the forests on this range. The Deputy-Commissioner is of opinion that there is at present not much inclination on the part of the people to extend clearances in these forests, as the Gáros look upon this range as sacred to the sylvan deities, and he hopes this idea, well worked on, will suffice to preserve these forests to a sufficient extent.

Protection and Improvement.

Forest Rules.

14. The protection and improvement of the Government forests has been greatly facilitated by the new Forest Rules sanctioned by the Supreme Government for this Province; they were published in the *Assam Gazette* of the 16th September, 1876, page 502, and are attached as Appendix II. to this Report.

It was intended that, whenever the Chief Commissioner might resolve to set apart any tract as a reserved forest, the privileges which the inhabitants of the neighbourhood were to be allowed to enjoy, and any customary rights which might belong to them in the matter of providing themselves with wood for domestic, farming, and other purposes, should be distinctly defined and approved by the Chief Commissioner; but, as it was doubtful whether in all cases it would have been practicable to prepare a complete record of this description before the forest selected as a reserve was demarcated and declared to be a reserve, and as in many cases probably the preparing of such a record would have seriously delayed the demarcation work, the rule containing the above provision was excluded by Government.

15. The provisions contained in Parts IV. and V. of the new Assam Forest Rules were declared to be in force in all the districts of the Province of Assam, with the exception of the Khási, Gáro, and Nága Hills districts, by notification dated the 10th November, 1876, in the *Assam Gazette* of 11th November, page 586.

16. Under the provisions of Rule 15 of the Assam Forest Rules, a list of the rivers, streams, and waters which shall be kept open for the transport of timber or other forest produce, was made out by the Deputy-Conservator in conjunction with the Deputy-Commissioners of the different districts to which the Forest Rules had been extended, and submitted to and approved of by the Chief Commissioner, and published by a notification dated the 27th March, 1877, in the *Assam Gazette* of 31st March, page 78. It is attached to this report as Appendix III.

Fire-protection.

17. Fire-protection in Assam during the year under review has been very successful; but there is no doubt that this is partly to be attributed to the weather, inasmuch as frequent showers in March and April have greatly aided the efforts made by the Forest and Civil officers. With the exception of Kámrúp, the influence of the civil officers has been brought to bear on the action of the villagers with excellent results, so that not nearly the same amount of recklessness and indifference was observed on the part of the villagers, hunters, and wood-cutters as in former years.

18. In the Choygaon, Bogai Pantan, and Burduar mouzahs of the Kámrúp district, however, the people are either exceptionally obstinate, or the mouzahdars and police have been very lax in their efforts to warn the people against carelessness in lighting fires and allowing them to spread, for the forest reserves in the Gauháti division were perpetually threatened by fires approaching from the outside. The Chief Commissioner has, in consequence, issued orders to the Deputy-Commissioner of Kámrúp that, whenever the origin of fires was traced more than once to a village, special detailed inquiries should be instituted, as it seemed certain that fires would never be checked by more general injunctions, and that wherever Government grazing lands in the vicinity of reserves are burned, special watchmen under the supervision of the nearest police-thannah or outpost be placed to keep out all cattle during the whole of the season succeeding the fire, which orders were notified to the villagers in the neighbourhood of the reserves, since the Chief Commissioner considered that improved grazing for cattle was the incentive to the lighting of fires, and, if the people once understood they would not be allowed to graze their cattle on the burned areas, that the fires in all probability would cease.

19. In Circular No. 33, dated the 11th May, 1876, to all Deputy-Commissioners and the Political Agent, Nága Hills, the Chief Commissioner drew attention to the enormous losses incurred in this Province from jungle fires, and expressed his astonishment at the reckless way in which the people set fire to the jungle on all sides as soon as a wind springs up. In this circular, it was further stated that Colonel Keatinge was convinced, by observations he had made regarding the rapidity with which timber grows on the low lands of the Assam Valley wherever the forest was not yearly burned, that, were it not for these fires, the large areas that are now covered with rank grasses would be nearly all grown over by more or less valuable timber, instead of which at present nearly all the forest patches are now surrounded by belts of burnt trees, showing the rapid manner in which their area is diminishing under the influence of the annual fires, which become more frequent as the population increases. As the indirect evils following on these annual fires are not easily appreciated by uneducated people, the Chief Commissioner stated his conviction that the necessary reform must be commenced by educating Government officers of all grades, and, through them, the people of the country, to look at the matter in its true economic light. The first step to be taken to attain this object was, the Chief Commissioner considered, to ascertain the direct losses by jungle fires, and Deputy-Commissioners were accordingly directed to submit a complete return of all known losses of property, either public or private, which information was then published in the *Assam Gazette* of the 14th October, 1876, page 550.

20. On receipt of the Government of India's orders on the Assam Forest Report for 1874-75, these were circulated to all Deputy-Commissioners and the Political Agent, Nága Hills, on the 6th of April, 1876, and their special attention directed to paragraph 4 of those orders, in which it was pointed out that fire-protection of any forest must be continuously maintained, if a material improvement in its condition was to be effected thereby.

21. Again, in November, 1876, the Chief Commissioner called the attention of all Deputy-Commissioners to the subject of jungle fires, and their prevention, in a circular, and it was impressed upon them how very great necessity there was for doing their utmost, and exercising all their influence to prevent the occurrence of jungle fires. The Deputy-Commissioners were further directed to impress, during their cold-weather tour, upon the mouzahdars, the headmen, or the zemindars, and even upon the ryot himself, the very serious consequence that might ensue from an act of often mere carelessness; and they were to cause it to be clearly understood throughout their districts that in future ignorance of the consequences of rashly setting fire to jungle or grass would not be accepted as a plea in bar of the punishment to which any person thus rashly originating one of these destructive fires might lay himself open, and a vernacular proclamation for publication throughout the districts was issued.

Koir forests.

22. The attention of the Chief Commissioner was attracted to the importance of Khair or Koir forests (*Acacia catechu*) in this Province by the Inspector-General of Forest's Report on Forest Administration in British Burma, page 7, paragraph 7, where it was stated that "Catechu was not a substance likely to be supplanted by manufactured articles, and that the demand for it had for some time past been rising steadily, while the sources of supply were diminishing; hence the great increase in the price of this valuable product." A report was accordingly called for and submitted by the Deputy-Conservator regarding the position and area of this particular kind of forest in Assam, some of which are included in the reserves, whilst others, and extensive areas, such as those north of Udalgari, in the Darrang district, remain as yet undemarcated, and under the management of civil officers.

23. An attempt was made by a planter in the Mangaldai sub-division, who desired to obtain the use of the Koir wood cheaply, to convince the civil officers of the district that the Koir tree was a most useless one, in which he nearly succeeded. However, on a reference being made to the Deputy-Conservator, the importance and value of this tree was explained, and it was pointed out that the present inferior condition of these forests in Assam was entirely owing to the annual burning of them. This information was communicated to those Deputy-Commissioners in whose districts Koir forests exist.

Jhúming.

24. Great vigilance is necessary, and has been used, in the Golághát forest division to prevent any jhúming in those forests. Since the comparative safety now enjoyed by the people living at the foot of the Nága Hills, in consequence of the establishment for years past of the Political Agent's residence in those hills, there is an inclination on the part of the people to extend jhúming eastwards, and to make clearances in the forests east of the Rengmah Hills, and further

south than was attempted formerly. The punishment of the mouzahdar and the trespassers last year has, however, evidently had a good effect, and a judicious imposition of fines amongst the forest subordinates at that time has been followed by an increased activity, which has prevented any further attempt at cultivation in the Nambor Reserve.

25. The appointment of Mikir forest-watchers from villages adjoining the Mikir reserves has also resulted in a better protection of these forests, since these men are hardier than the Assamese, and more up to the tricks of their own class, so that no trespass escapes them easily.

Cutting of creepers.

26. The cutting of creepers was confined to the Sâl forests in the Gauháti division during the year; but in these fair progress has been made. The Jara Sâl forest reserve in the Gauháti division has been completely gone over, and all creepers cut in it; and in the Barduar reserve, in the same division, on about 500 acres all the creepers were cut, making the total area in the Gauháti division about 1,500 acres, at a cost of Rs. 308-3-9.

Kulsi plantation.

27. Plantation work at the Kulsi, in the Gauháti division, was restricted during the year to the filling up of the vacancies in the teak plantations with Náhor, Tun, and Sisu, to get the areas already started completely stocked. Under the orders of Government, in the last year's Forest Report, the experimental cultivation of Teak will be continued in the current year.

The preparing of the area set aside at the Kulsi for the experimental Rubber plantation was completed, and 400 cuttings are ready to be planted out in the new lines as soon as the weather permits, and for the filling up of vacancies.

Chardnar plantation.

28. The Charduar Rubber plantation has been extended by 110 acres, and was surveyed, mapped, and divided into blocks. The latter, as well as the lines on which the Rubber-trees are planted; are marked with numbered posts to facilitate supervision. The growth has, on the whole, been very satisfactory. In some lines, the deer have bitten off many of the plants, which is very difficult to prevent at the season when the paddy in the fields ripens, and for some time after, as the plantation is situated at the margin of the forest, and thus is resorted to for shelter by the deer. The biting off of young shoots only checks the trees temporarily, but does not interfere with their eventual development, and the luxuriant growth of the trees soon places the main shoot out of the reach of the deer.

29. A large nursery containing beds for propagation, measuring one acre, was established on high ground, since, contrary to all expectation, and the statement of the neighbouring villagers, a very exceptional flood caused the old seed-beds to be inundated, by which most of the seedlings were killed.

Bamuni Hill plantation.

30. The most of the trees in the small experimental Rubber plantation on the Bamuni Hill near Tezpur, which was burned last year, have made new shoots from the roots, and all the vacancies have been filled up. Two acres were abandoned during the year.

Shillong plantation.

31. In the Shillong plantation the following conifers were planted successfully, but the growth of some of the species is very slow up to the present :—

Cedrus deodora.	Pinus austriaca.
Abies Smithiana.	Pinus maritima.
Pinus excelsa.	Cryptomeria Japonica.

32. Of the *Eucalyptus globulus*, all the trees, with one or two exceptions, were killed by frost during the cold-weather, whilst *Eucalyptus rostrata* seems hardier, and has done much better; although even for this species the land and locality of the plantation seems less favourable than some of the gardens in Shillong.

An extensive sowing of indigenous oak was contemplated, but the year proved one in which hardly any of the oaks bore seed; it is hoped to carry out this measure in the current year. The young oak seedlings of 1875-76 were, after transplanting, regularly searched after by the rats, which bit off the plants, ate the acorns, and thus destroyed nearly the whole plantation. These pests are exceptionally destructive in these hills, and they are so numerous in some years that there is no remedy for them, and much of the success of oak-planting near Shillong will depend on the greater prevalence or absence of these destructive creatures in the two first years the oaks are sown.

Buildings.

33. Due attention has been paid to provide better shelter for the officers and subordinates of the department; the forest inspection-house at the Bhairabi depôt, in the Tezpur division, was completed, and the building of another one at Dhubri, in the Goálpára division, nearly so.

The following is a list of the buildings existing in the different forest divisions at the end of the year under notice :—

GOÁLPÁRA DIVISION.

		Rs.
1	forest house at Dhubri (not completed).	
4	inspection-huts, total value	520
10	smaller huts, total value	150

GAUHÁTI DIVISION.

1	forest house at the Kulsi plantation, value	4,000
15	smaller huts, total value	300

TEZPUR DIVISION.

1	forest house at Bhairabighat, value	4,000
1	plantation inspection-hut, value	200
1	forest-ranger's hut, value	100
21	small huts, total value	253

GOLÁGHÁT DIVISION.

3	inspection-huts and one office, total value	800
4	small huts, total value	100

CACHAR DIVISION.

2	small huts, total value	75

The Chief Commissioner has also been pleased to sanction the occupation of the undermentioned forest houses by Forest officers free of rent :—

1*st.*—The inspection forest house at the Bhairabighat timber depôt, in the Tezpur forest division.

2*nd.*—The inspection forest house at the Kulsi plantation, in the Gauháti forest division.

Yield and working.

34. The timber from the Assam reserved forests is worked out in two different ways, as follows :—

System of working the forest.

First.—By Government agency.
Second.—By purchasers.

The latter mode, again, varies according to the custom that was in vogue when the Forest Department took charge of these forests, and which it has been considered the best policy not to interfere with at first, unless in special cases, where the conservancy of the forests required an immediate change. So, for instance, in the Goálpára division the duffadars are still allowed to work out dead wood on their own account, and to bring it in to the Government depôts for sale, whilst in Cachar the license system has been maintained, and the price of wood, bamboos, cane, and grass is collected at the Sealtek toll-station when leaving the Cachar district.

The timber from the unreserved forests, except in the Gáro Hills, is worked out by the purchasers on permits granted by the Deputy-Commissioners on prepayment of the price of the produce they wish to remove. In the Gáro Hills, the timber and other produce is first collected, and then the price paid to the officer deputed by the Deputy-Commissioner to collect it. An account of the yield of the unreserved forests in material cannot be given at present; but it is hoped that, with the changes introduced in the keeping of the forest accounts by district officers, this information will be collected complete in 1877-78; until then the amount realized is the only way in which the quantity of material removed is indicated.

Work by Government Agency.

35. The number of trees felled by the department were the following:—

		Trees.
Goálpára division	... ...	166
Gauháti „	... ...	711
Tezpur „	... ...	335
Golághát „	... ...	200
	Total ...	1,412

They were of the undermentioned kinds :—

	Trees.		Trees.
Sâl	928	Uriam	14
Sam	2	Bola	3
Nahor	93	Gomari	5
Ajhar	331	Kochon	9
Sidah	10	Amari	4
Ahay	1	Mukudima	1
Gunserai	4		
Bar Jamu	1	Total ...	1,412
Poma	6		

The conversion into logs was the following :—

	Logs in hand at the commencement of the year.	Logs cut during the year.	Total.
Goálpára division	.....	685	685
Gauháti „	393	477	870
Tezpur „	163	534	697
Golághát „	168	.....	168
Total ...			2,420

The number of scantlings cut during the year were the following :—

	Piece
Gauháti division	404
Tezpur „	1,599
Goálpára „	66
Total ...	2,069

These were all brought into depôt. Besides this, the following logs were brought to depôt :—

	Logs.
Gauháti division...	82
Tezpur „	174
Golághát „	118
Total ...	374

In addition to this, the following dead Sâl-wood was worked out of the forests, and brought to depôt by Government agency :—

	Pieces.
Tezpur division	303

The timber sold during the year was the following :—

	Logs.	Pieces.	Boats.
Gauháti division	10	.....	.....
Tezpur „	132	473	.....
Goálpára „	.....	38	.....
Golághát „	.....	.....	2
Total ...	142	511	2

The following is the timber used by the department, or lost in transit:—

	Used by the department.		Lost in transit.	
	Logs.	Pieces.	Logs.	Pieces.
Goálpára division	123	50	...	...
Gauháti „	...	108	...	...
Tezpur „	...	143	6	4

Of the 123 logs and 50 pieces used in the Goálpára division for building the bungalow at Dhubri, 120 were sent from the Gauháti division. The other three logs and fifty pieces were brought from the forest direct to Dhubri, and were not included in any of the timber statements. The sale from depôts is very uncertain, as there is no general market for timber in the Province, except in the Goálpára district, for which reason a sale-depôt has been established at Dhubri, where it is intended to remove all timber which is not required locally. Nevertheless, with a view to induce traders to go higher up the Brahmaputra than Dhubri, and thus relieve the department of some of the floating work, the prices charged, after due allowance for the cost of floating has been made, are less than at Dhubri.

Work by purchasers.

36. The number of trees sold standing in the reserved forests has increased from 121 in 1875-76 to 523 in 1876-77,—they are almost exclusively used for cutting boats or dug-outs.

Removal of dead wood.

37. Large quantities (21,813 pieces) of dead Sâl-wood were worked out by the Meech duffadars, 17,513 of which were sold. This wood is collected and stacked in the Government timber-depôts for sale, and the revenue not realized from the duffadars until the timber is sold, as they are people of limited means, and it is better for the department to deal with these men direct, even though the revenue is only realized when they sell, than to let middlemen come in between them and the department. No risk of losing revenue is run, since the timber is stored in the departmental depôts, and not allowed to be removed until it is paid for.

Licenses granted in the Cachar division.

38. The number of licenses granted in the Cachar division were the following :—

		Rs.
(1).	Licenses for elephants to drag timber	77
(2).	Licenses to cut timber, bamboos, canes, and grass ...	1,511

Sealtek toll-station.

39. The undermentioned forest produce passed and paid toll at Sealtek, in Cachar :—

Logs.			Posts and planks.			Bamboos.		Canes.		Grass.		Charcoal.	
Number.	Cubic contents.	Amount.	Number.	Cubic contents.	Amount.	Number.	Amount.	Number of bundles.	Amount.	Number of rafts.	Amount.	Number of maunds.	Amount.
2,934	52,565	Rs. A. P. 7,481 14 0	618	710	Rs. A. P. 207 1 8	234,350	Rs. A. P. 292 15 0	10,718	Rs. A. P. 168 13 5	142	Rs. A. P. 355 0 0	308	Rs. A. P. 38 8 0

The quantities of material from private forests which passed the toll-station free were the following :—

Logs.	Posts and planks.	Bamboos.	Canes.	Grass.
2,685	349	60	1,008 bundles	1 raft.

Selection of timber.

40. For the convenience of purchasers, selection of timber in the Forest Department depôts in Assam is permitted at an extra charge of 25 per cent., as authorized by the Chief Commissioner.

Wood for engraving and furniture.

41. Inquiry was made by Government during the year under notice, regarding box-wood fit for engraving blocks, and the Inspector-General of Forests drew attention in a circular to the same, and the possibility of woods for furniture even being exported at a profit from this country to Europe. The three undermentioned kinds of wood have accordingly been cut and seasoned, with the view of sending specimens home to obtain a report on them. The Ahoy might possibly answer for engraving blocks, and the other two be acceptable for furniture; both the latter are said to take a good polish. The Bola is a bright yellow colour, somewhat resembling Satin-wood, whilst that of the Amari is a dark red, not unlike Mahogany :—

Ahoy.—*Vitex peduncularis.*
Bola.—*Morus laevigata.*
Amari.—*Amoora spectabilis.*

Railway sleepers.

42. Copies of correspondence between the Conservator of Forests, North-Western Provinces, and the authorities of the Oudh and Rohilkhund Railway, regarding the suitability for railway sleepers of different kinds of trees included under the general term of "jungle woods," were circulated by Government, with orders to make similar experiments in other Provinces. There are many such woods growing in Assam, which no doubt will answer well for this purpose, and to try some of them the Engineer-in-Chief of the Northern Bengal State Railway was addressed, and has taken five sample sleepers of each of the undermentioned kinds on trial, and kindly promised to keep the Deputy-Conservator informed as regards their durability :—

Ajhar or Jarool.—*Lagerstræmia reginæ.*
Gunserai.—*Cinnamonum glanduliferum.*
Sidah —*Lagerstræmia parviflora.*
Sam.—*Artocarpus chaplasha.*
Nahor or Nagessur.—*Mesua ferrea.*

43. The question, however, will probably be more one of cost of conversion and transport than of the suitability of the wood, and to make this quite clear before starting works of this description, and not to run any risk of losing by the transaction, the Engineer-in-Chief of the Northern Bengal State Railway has been addressed about the price to be paid for such sleepers.

44. The exorbitant cost of labour in the Brahmaputra Valley, alluded to by the Chief Commissioner in the Resolution on the last Annual Forest Report, has forcibly come to notice during the above inquiry, and applies to the rates of freight charged by the Steamer Companies plying on the Brahmaputra as much as to the wages of labourers. Both Steamer Companies were addressed, with a view of getting the freight for the carriage of railway sleepers to Kushtia lowered, and the Deputy-Conservator is still in correspondence with the Secretary of the India General Steam Navigation Company about this, since floating timber to Dhubri, or even to Goalundo, by country boats presents great difficulties as to landing, and was represented to the Deputy-Conservator by a man who had for many years carried on timber trade from the Goálpára district to Bengal, as almost impossible, on account of the strong currents caused by the confluence of the two great rivers, the Jamuna and the Ganges, at Goalundo.

Caoutchouc.

45. The Supreme Government passed orders on the Chief Commissioner's proposals regarding the control of the trade in Caoutchouc, or India-rubber, in Assam, to the effect that the revenue which might be expected from this source was insignificant, as compared with the disadvantages attendant on making the trade a monopoly, which latter was the only means of controlling it, and that the conservancy and reproduction of the trees by the Forest Department should be carried out on certain reserved areas only. Operations of this kind were started some years ago in the Char Duar of the Darrang district, and will be continued in future on an extended scale. Under these circumstances, the revenue from Caoutchouc is for the present next to none, and is only realized in the Gáro Hills, where the Deputy-Commissioner buys at present the Rubber from the collectors at Rs. 20 per maund, and re-sells it at Rs. 32.

Paper stock from bamboo.

46. A set of samples of bamboo paper-stock and paper manufactured from that material were received, through the Government of India, from Mr. Routledge, to illustrate that gentleman's remarks made in correspondence regarding the value of bamboo for paper-stock.

A report was also submitted by the Deputy-Conservator of Forests to the Chief Commissioner, explaining the hopelessness of producing bamboo fit for paper-stock on plantations in this Province at a sufficiently low cost. In the same report, "Burnihat," on the Gauháti and Shillong road, was pointed out as a suitable locality for the establishment of a manufactory for paper-stock, where many miles of luxuriant bamboo forest alongside of an excellent road are ready for immediate use.

Financial Results.

Summary of receipts and expenditure.

47. The receipts and expenditure of the year in the different divisions and by Civil officers are given in the prescribed form, No. 49, under the new budget heads, the totals under the two main heads, A and B, agree with the figures of the Civil Account Department, except as regards the pay of the Forest establishments employed under District Officers, Rs. 3,350-3-1, which has erroneously been adjusted by the Deputy-Accountant-General, under "A.—Conservancy and works," instead of under "B.—Establishments." The transactions of the year for the whole Province are exhibited under the main heads of "Revenue and Expenditure" in the following table :—

	Receipts.		Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III.	4,097	A. I., III., half of VI., and B.	36,978
II.—Other revenue	II., IV., and V.	77,471	A. II., IV., V., IX., one quarter of VI., and B.	17,457
III.—Formation, protection, and improvement of the forests	....	....	A. VII., VIII., one quarter of VI., and B.	33,484
Total	....	81,568	....	89,919

This distribution of items has been made in accordance with the orders of Government passed on the Annual Forest Report of Assam for 1875-76; but, as the timber works are as yet small in Assam, it would have been a more correct representation of the financial results if only a quarter of B had been entered under "Charges against departmental timber operations" and half of B against "Formation, protection, and improvement of forests."

48. The forest receipts of the year under notice, as compared with those of the previous year, are the following :—

Receipts, 1875-76. Rs.	Receipts, 1876-77. Rs.	Decrease, 1876-77. Rs.
1,07,301	81,568	25,733

This is in no way a falling off of Forest revenue, but is a attributable to a transfer of the receipts from "Elephant-catching and Soom forests" from the head "Forest Revenue" to "Miscellaneous Land Revenue," which transfer was made in accordance with the orders of Government in the Financial Department.

Revenue from elephants and soom forests.

49. By this ruling the broad principle, according to which the Forest Department credited as revenue all income derived from forest lands or produce, irrespective of the precise sytem of supervision, or whether realized by the Forest Department or by district officers, as laid down in the Government of India orders on the Bengal Forest Report for 1867-68 (No. 468 F., dated the 5th October, 1869), has been set aside, and will very seriously curtail forest work, as the sanction of expenditure depends on the expansion of forest revenue, which latter becomes very difficult, if Rs. 40,000—60,000 realized on forest produce are thus removed from forest revenue. Moreover, the Supreme Government, in the above-quoted orders on the Bengal Forest Report for 1867-68, distinctly explained that, even if a narrow view was taken as regards the receipts which should be credited to the Forest Department, the Conservator's duties extended over the Province generally, and that all forests under civil officers should be managed under the Conservator's advice. This same principle was laid down in the new Assam Forest Rules, as approved by the Supreme Government, and, indeed, a very large proportion of the Deputy-Conservators time is taken up in the general supervision of the forests managed by civil officers.

50. As to the elephant-catching, it is always done in the forests, and could not possibly be carried on successfully without the goodwill and support of the officer in charge of such forests, since large quantities of timber are required for the building of the stockades in which the elephants are caught, and forest operations of every description, which may be carried on at the time in that part of the forest where the lessee of the mehal wishes to catch the elephants, have to be discontinued, or no elephants would be caught.

51. As regards the Soom forest, it was ruled that the revenue derived from them was not to be credited to the Forest Department, unless it was managed and collected by the Forest Department.

It has frequently been explained that much of the forest management in Assam must remain in the hands of the civil officers under the general supervision of the chief Forest officer in the Province, and district officers had, where necessary, small forest establishments sanctioned permanently for this purpose. To give this principle a still wider application and more effect, the Chief Commissioner sought and obtained the Government of India's sanction to the payment of 10 per cent. to the mouzahdars on the collections of forest revenue, and the Soom forests are looked after by these officers just as any other forest in their mouzahs. The mugah and maizankori silkworms are exclusively reared on the trees in the forests, and why the rule that applies to the grass growing in the forest and eaten by cattle should not apply to the leaves on the trees that are eaten by the silkworms it is difficult to understand.

Comparison with former year.

52. The expenditure during the year under notice, as compared with that of the previous year, is shown in detail in the following table :—

Budget Heads.	1875-76.	1876-77.	Increase.	Decrease.
A.—CONSERVANCY AND WORKS.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
I. Timber and other produce removed from the forests by Government agency..	2,092 5 9	3,687 1 6	1,594 11 9	.....
II. Timber and other produce removed from the forests by consumers or purchasers	2,321 8 0	239 13 8	.....	2,081 10 4
III. Confiscated drift and waif-wood	.....	.....	.....	.....
IV. Revenue from forests not managed by Government	.....	.....	.....	.....
V. Rent of leased forests and payments to shareholders in forests managed by Government	50 0 0	50 0 0	.....	.....
VI. Live and dead stock	8,928 10 0	18,666 9 4	9,737 15 4	.....
VII. Communications and buildings	4,820 12 3	6,941 8 3	2,120 12 0	.....
VIII. Demarcation, improvement, and extension of forests	14,813 4 1	11,897 8 4	.....	2,915 11 9
IX. Miscellaneous	159 15 0	521 15 4	362 0 4	.....
Total, "A.—Conservancy and Works"	33,186 7 1	42,004 8 5	13,815 7 5	4,997 6 1
B.—ESTABLISHMENT.				
I. Salaries	23,869 10 11	41,771 1 10	17,901 6 11	.....
II. Travelling allowances	4,000 3 6	5,116 14 6	1,116 11 0	.....
III. Contingencies	827 6 2	1,027 3 0	199 12 10	.....
Total, "B.—Establishment"	28,697 4 7	47,915 3 4	19,217 14 9	.....
Grand Total of Expenditure	61,883 11 8	89,919 11 9	33,033 6 2	4,997 6 1

53. The increase under "I.—Timber and other produce removed from the forests by Government agency" is small, and is due to the extension of timber works; they will increase steadily, now that the organization of the forest has sufficiently advanced to permit divisional officers giving more of their time to this work. Still, very great caution has to be observed, and timber is not to be worked out unless its sale is perfectly certain. With the exorbitant cost of labour in the Brahmaputra Valley, it is difficult to compete for the present with timber-traders who obtain their stock from the private forests in the Goálpára district, close to the market; besides which, a too hasty extension of timber works would raise the price of local labour still higher, and the importation of labourers for this sort of work is, for many reasons, also very precarious.

At present there is much timber on private estates in the Province, so that but little is required from this department, whilst, on the other hand, the demand by timber-traders from Bengal is increasing steadily.

The decrease under "II.—Timber and other produce removed from the forests by consumers or purchasers" is to be attributed to the small quantity of rubber collected during the year in the Gáro Hills.

The increase under "VI.—Live and dead stock" was chiefly caused by the purchase of six elephants, which the department could not have done without.

Under "VII.—Communications and buildings" there was a small increase on account of the better shelter provided for Forest officers and subordinates, which was indispensable, and approved of by the Supreme Government.

Under "VIII." there was in reality no decrease, but a slight increase, since the cost of the Forest establishments employed under civil officers, now permanently sanctioned, was in 1875-76 charged under this head, whilst in 1876-77 it was in the above statement entered under "B," and is more than the decrease shown under this head.

The small increase under "IX.—Miscellaneous" is due to the progress made in the working of all the forest divisions.

The increase under "B.—Establishments" is to be accounted for by the increased number of officers, the promotions during the year, and the charging of the subordinate establishments employed under civil officers under "B.—Establishments," instead of under "A.—Conservancy and works."

Receipts and charges in the different divisions.

54. The distribution of receipts and expenditure in the different divisions is shown in the following table: —

Name of Division.	Receipts.			Expenditure.			Surplus.			Deficit.		
	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.	Rs.	As.	P.
Direction	7,755	10	6	16,663	13	4	.....			8,908	2	10
Gauháti division	2,983	1	0	15,355	14	3	.....			12,372	13	3
Tezpur „	3,204	0	1	23,180	0	3	.....			19,976	0	2
Golághát „	657	11	0	3,039	5	1	.....			2,381	10	1
Goálpára „	14,363	4	0	16,136	3	6	.....			1,772	15	6
Cachar „	10,258	6	8	9,581	13	6	676	9	2	.....		
Civil Officers	42,346	1	5	5,962	9	10	36,383	7	7	.....		
	81,568	2	8	89,919	11	9	37,060	0	9	45,411	9	10

As was the case last year, and will be for some years to come, the chief revenue was realized by district officers in the year under notice, whilst the chief expenditure, as a matter of course, will always be incurred by the Forest officers; still, if the above figures are compared with those of the previous year, it will be seen that the revenue collected direct by Forest officers has increased from Rs. 10,913 to Rs. 39,222, and that one of the divisions, Cachar, has shown a small surplus.

The decrease in receipts by civil officers is due to the removal of the revenue derived from elephants and Soom forests to "Land Revenue."

CHAPTER II.

RESERVED FORESTS.

GOÁLPARÁ DIVISION.

Area and Boundaries.

55. The area of the reserves as gazetted in this division remains 348 square miles.

56. The Sidli forest, however, although not as yet gazetted as a reserved forest, is demarcated, and has received quite as much protection, and more so, than the other forests, as the divisional officer was employed in it on survey and demarcation work during the whole season. Proposals to have this forest, extending over 68·37 square miles, or 43,762 acres, gazetted as a reserve were submitted for the approval of the Chief Commissioner.

Demarcation.

57. The demarcation has been carried out in a most thorough and substantial manner by boundary-posts of heartwood of Sâl, with consecutive numbers on them.

The demarcation of village and other cultivated lands included in this forest has been carried out in the same way as that of the exterior boundary. Besides this, all the compartments were marked with numbered posts at the points where the lines defining them cross each other.

Valuation Surveys.

58. Valuation surveys were carried out and completed in the following two blocks :—

Maligaon Block.

Total area in acres.	Area valued, in acres.	Percentage of area valued.
8,873	376·2	4·23

Bansbari Block.

7,727	354·3	4·58

The statement exhibiting the result of the valuation surveys in detail is attached to this Report,—Appendix V. It shows the number of Sâl and Chelani-trees, exclusive of saplings under one cubit, on a hundred acres to be as follows, if the grass land is excluded :—

Maligaon Block.

	Sâl.	Chelani.	Total.
Second-class trees	3,676	9	3,685
Third-class „	443	10	453
Fourth-class „	10	4	14
Total	4,129	23	4,152

Bansbari Block.

Second-class trees	4,597	8	4,605
Third-class „	679	14	693
Fourth-class „	36	5	41
Total	5,312	27	5,339

If the grass lands are included in this calculation, the number of trees above one cubit on a hundred acres is as follows :—

Maligaon Block.

	Sâl.	Chelani.	Total.
Second-class trees	2,156	5	2,161
Third-class „	260	6	266
Fourth-class „	6	2	8
Total	2,422	13	2,435

Bansbari Block.

Second-class trees	2,793	5	2,798
Third-class „	413	8	421
Fourth-class „	22	3	25
Total	3,228	16	3,244

59. The different classes of forests in the two blocks surveyed are the following :—

Maligaon Block.

	Acres.
Sâl forest	4,580
Lower hill forest	625
Grass land	3,668
Total	8,873

Bansbari Block.

Sâl forest	4,344
Lower hill forest	349
Grass land	3,034
Total	7,727

Distribution of forests.

60. The distribution of these different classes of forests is shown in a map on the scale of four inches to the mile, drawn by Mr. Fisher, the Assistant-Conservator of Forests in charge of the Goálpára division, a copy of which, on the reduced scale of one inch to the mile, will be appended. A very full report on the Sidli forest was submitted by the same officer.

61. The areas of the different classes of forests were, as in the previous year, calculated from the surveys made by this department along the lines dividing the forest into compartments, and the areas of the village lands have also been calculated from actual surveys made by this department.

The manuscript sheets of the Assam Revenue Survey, on the scale of four inches to the mile, have again been made use of in the preparation of the above map.

Examination of concentric rings in Sâl and Ajhar.

62. A statement showing the results of an examination of the concentric rings in eleven Sâl and five Ajhar-trees in the Sidli forest is also attached to this Report,—Appendix VI.

63. The condition of the forests is, on the whole, very good, and only requires the fires to be kept out to insure their rapid improvement.

Proposed addition to the Cherang reserve.

64. Besides the Sidli forest, about four square miles of very fine Sâl forest were demarcated south of the second, or western, part of the Cherang reserved forests, and proposals to have this added to the latter were also submitted to the Chief Commissioner for approval.

Protection and Improvement.

Permanent establishment.

65. The protective establishment sanctioned for the Goálpára division is the following:—

One forest-ranger.
Seven forest-watchers.

It is obvious that this is altogether insufficient for the proper protection of 424 square miles of forests, and proposals for an increase of the subordinate staff will be submitted, since, small as the above establishment is, it becomes frequently reduced to half by illness in the trying climate of the Eastern Duars.

Fire-protection in Sidli forest.

66. The fire-protection is the most important work, next to the survey and demarcation, and is greatly facilitated by the division of the forests into compartments, as has been done in the Sidli forest.

The following table shows the results of the efforts made by Mr. Fisher to keep out the fire from the four surveyed blocks of the Sidli forest, where he was able to give much personal attention to this work :—

Name of Block.	Area of Forest in Acres.		
	Protected.	Burned.	Area attempted to be protected.
Ohubgaon...	7,106	1,400	8,506
Haltagaon	6,910	300	7,210
Maligaon	1,400	5,030	6,430
Bansbari	4,800	200	5,000
Total	20,216	6,930	27,146

In addition to the permanent establishment, six temporary forest-watchers were employed in January and February, four during March, April, and May, and three in June.

Employment of village headmen on fire-protection.

67. A more important and effectual measure, inaugurated by Mr. Fisher, was, however, the employment of the headmen of the four villages, Mitagaon, Muriagaon, Haltagaon, and Amguri, from the first of January until the time the danger from fire was considered over, at the end of June.

These men received a written promise of Rs. 7 a month each as reward, if they kept the fire out of certain specified tracts, or reported the name of any person who was suspected of having set fire to the forest. Besides this, they were allowed to use dead Sâl-wood out of the forest for their own domestic purposes for a year, if they protected the forest properly. The result of this arrangement is reported to have been very satisfactory; two of these headmen made great efforts to keep out the fires, and were almost completely successful. The Mitagaon headman, with his people, changed the site of their village, so his agreement lapsed; whilst the headman of Muriagaon failed to give satisfaction, as he did not take sufficient precautions to prevent the spread of fire from his cultivation, and consequently received no reward. Great hopes are entertained that this system will, now that the object of the measure has been well explained to these people, greatly aid the direct efforts made by the Forest Department.

Fire-lines.

68. The length of fire-lines prepared in the Sidli forests was thirty-four miles, and the expenditure on this work has been the following :—

	Rs.	As.	P.
Cutting and burning of fire-lines	238	6	0
Pay of fire-watchers	172	8	3
Rewards to villagers	84	0	0
Total ...	494	14	3

Fire-protection in Goma forest.

69. The protection of the Goma forest was also attempted, a fire-line 4½ miles in length prepared, and the following expenditure incurred:—

	Rs.	As.	P.
Cutting and burning of fire-lines	87	12	0
Pay of fire-watchers	43	2	6
Total ...	130	14	6

Until the 10th of April these efforts proved successful; but a great portion of the forest was burned afterwards, chiefly because no reliable person was available to place in charge of this forest.

70. It has been very gratifying to learn, from the orders passed by the Supreme Government on last annual report, that the sanction of the needful funds will be accorded for the protection of the Sál forests in the Goálpára forest division. The necessary provisions will be entered in the next budget estimate; at the same time, it must be remembered that it is absolutely necessary to increase the permanent establishment in the Goálpára division to ensure success, since, very naturally, the temporary employés will not make the same strenuous efforts, and have not their heart so much in their work, as persons permanently employed,—and much of the success in the future fire-protection will therefore depend on the increase of the permanent subordinate staff employed.

Yield and Working.

Work by Government agency.

71. The only timber work attempted by Government agency in the Goálpára division was the felling and logging of 156 trees in the Sidli forest, and the conversion of some of the trees felled on the survey lines; they gave a total number of 675 logs, which are being dragged to the Gaurang and Sowmoka rivers. Ten trees of Sida (*Lagerstræmea parviflora*) were felled, and twenty-eight sample sleepers cut from them for trial on the Northern Bengal State Railway.

The cubic contents of the above 675 logs was the following:—

	No. of logs.	Cubic contents.
Sâl	631	7,184
Ajhar	39	717
Gunserai	2	27
Bar Jamu	3	26
Total ...	675	7,954

72. The sale of standing trees in the forests increased to 113, as compared with fifty-six sold in the previous year: they were all used for cutting boats or dug-outs.

Work by purchasers.

The duffadars or woodcutters worked out 21,813 pieces of dead Sâl-wood, 17,513 of which were sold, and the 4,300 pieces remaining are stacked in the Kukrajhar timber-depôt.

73. The divisional officer visited all the different timber markets in the Goálpára district, and submitted a full report on the timber trade.

Report on the timber trade.

74. Four pieces of land for timber depôts were taken up in the Goálpára district, north of the Brahmaputra, under Section 6, Act X. of 1870, and one timber-depôt was established on Government land at Dhubri. A register of these depôt lands, giving area and detailed description of their boundaries, is recorded with this Report as Appendix IV.

Timber-depôts.

Financial Results.

75. There is not much to be said at present about the financial results in any of the forest divisions, since nearly all the time of the officers in charge has been taken up in survey and demarcation work, and for some years to come this will have to be done. As explained often before, the Sâl forests have been worked excessively, and require rest, whilst there is not as yet much demand for other kinds of timber. This applies especially to the Goálpára division, where almost every Sâl-tree above 5 feet in girth that was sound and well shaped has been removed long ago. The revenue, as shown in the figures below, shows an increase, as compared with the previous year, which, however, has been chiefly realized by the sale of dead Sâl-wood, of which but little remains now in the forests.

76. The receipts and charges in the Goálpára forest division during the last two years were as follows:—

		1875-76. Rs.	1876-77. Rs.
Receipts		502	14,363
Charges	A.	957	8,290
	B.	4,204	7,846
Total Charges ...		5,161	16,136
Deficit ...		4,659	1,773

The following table exhibits the transactions of the year in the Goálpára forest division, under the main heads of revenue and expenditure :—

	Receipts.		Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III.	12	A. I., III., half of VI., and B.....	6,142
II.—Other revenue.....	II., IV., and V.....	14,351	A. II., IV., V., IX., one quarter of VI., and B. ..	8,140
III.—Formation, protection, and improvement of the forests	.....	....	A. VII., VIII., one quarter of VI., and B.	0,854
Total	.....	14,363	.....	16,136

Gauhâti Division.

Area and Boundaries.

77. The area of the reserves in this division remains 52·26 square miles.

78. The substantial demarcation of the Milmillia reserve, with numbered boundary-posts of heartwood of Sâl in the centre of mounds of earth, has been completed, and of the Barduar reserve but little remains to be done.

Demarcation.

79. A beginning was made in valuation surveys in the important forests of this division, but the work accomplished was very trifling. It is, however, hoped that Mr. Mein, with the experience gained during the year under review, will make more progress in the coming season. The forest, part of which has been surveyed this year, is No. VII., the first addition to the Barduar reserve.

Valuation Surveys.

Protection and Improvement.

Permanent establishment.

80. The protective establishment sanctioned for the Gauháti division is the following:—

One forest-ranger.
Two foresters.
Fourteen watchers.

This is barely sufficient, and no new area can be added to the reserves without an increase of the subordinate staff, since the greater population in the neighbourhood of these forests renders it perfectly impossible to increase the beats of the watchers. One of the foresters is employed exclusively on plantation work.

Fire-protection.

81. The fire-protection is here also, as in the Goálpára division, the most important work, next to survey and demarcation, and has been most successful during the year, and, whilst there is no doubt that part of this has to be attributed to the weather and the earlier commencement of the rains, it must be said that there was constant danger from fire, which originated in the recklessness of the surrounding villagers. It is true, the expenditure on this account, *viz*, Rs. 1,645-5, has been greater here than in other divisions, the reason for which is that fire-protection is more difficult on account of the greater population in the neighbourhood of these forests, and the people's indifference to the orders of the district officer. The above amount is, after all, not more than Rs. 27 per square mile.

Cutting of creepers.

82. This important work was carried out carefully and systematically during the year under notice in the Gauháti division. The Jara Sâl forest, area 1,040 acres, was thus completed. In the Barduar reserve the same work extended over an area of about 500 acres, making the total about 1,500 acres, at a cost of Rs. 308-3-9. This work will be continued now steadily in future.

Caoutchouc plantation.

83. The Caoutchouc plantation at the Kulsi, in the Gauháti division, was extended by ten acres. The countings, made at the end of the season, gave the following results:—

Total number of planting-spots examined ...	...	...	...	1,431
Number of plants alive ...	...	...	...	1,280
Ditto failures ...	...	...	...	151
Percentage of plants alive ...	...	...	90	100
Ditto failures ...	...	...	10	

Besides this, there were about twenty acres more cleared for planting, and 400 well-rooted cuttings were in the nursery, ready for transplanting. An experiment of raising Rubber-plants from seed at the Kulsi plantation has failed.

The growth, on the whole, is satisfactory; but here, as in the Charduar plantation, the deer continued to be very troublesome, and bit off many of the plants, in spite of fencing.

The expenditure during the year on the Caoutchouc plantation at the Kulsi was Rs. 209-0-3.

Timber plantations.

84. No extension was made in the Teak plantations, since many vacancies existed, and it was desirable to get the area already planted first properly stocked.

Teak plantation of 1872-73 and 1873-74, area 33 acres.

Nothing has been done in this plantation, except slight clearing and filling up of a few vacancies in one part of the plantation with Poma (*Cedrela toona*) and Sissu-seedlings, at an expenditure of Rs. 109-5-6, or Rs. 3-5 per acre.

Measurements made by Mr. Mein gave the following results:—

Average height, 29½ feet.
Average girth, 4 feet above the ground, 11½ inches.

Teak plantation of 1874-75, area 20 acres.

This plantation, as already stated in former reports, is situated on low hills in distinction from those of 1872-73 and 1873-74, which are on almost level land. It has also been reported that the seed received from Burma was very bad. In addition to this, insects proved very destructive, the heavy and sudden downpours washed away the seeds from the planting-spots, and many of the transplants were dried up before they had time to send their new roots into the hard ground. Much hoeing could not be attempted, for fear of having the soil washed down the hill. All this has caused the plantation of 1874-75 to be very irregular, and made it much more expensive than the

plantations of the previous years; still, every effort has been made to get it completely stocked, as the growth in those parts of the plantation where the seed, gathered in Gauháti, germinated at once is excellent, and quite equal, if not better, than on the level land.

The countings made in this plantation showed the following results:—

Total number of planting-spots examined	...	...	...	1,156
Number of plants alive	...	...	...	927
Ditto failures ...	...	...	...	229
Percentage of plants alive	...	...	80	100
Ditto failures ...	...	...	20	

The expenditure during the year under notice on this plantation was Rs. 153-7-9, Rs. 7-10-9 per acre.

Teak plantation of 1875-76, area 20 acres.

This plantation is also on low hills, adjoining that of 1874-75. The seed germinated badly at first, and great numbers of the young seedlings were bitten off by grubs, some of which, however, made new shoots the following rains. Great efforts were made to combat with this and other disadvantages, and to get the area fully stocked by planting Teak, Poma, Sissu, and sowing Nahor on the vacant planting-spots. Here also the some difficulty was experienced in getting young plants to establish themselves on the hill sides, and great numbers of the Nahor-plants were bitten off, and the seed scratched out of the ground and eaten by porcupines, which it took some time to get rid of. This has made the plantation here also irregular and backward; still, as in the plantation of 1874-75, the growth in those parts where the seed germinated at first, and consequently the young trees established themselves at once firmly in the ground, is excellent, many of the trees being upwards of ten feet in height.

According to the countings made, as shown below, there were, however, still 37·5 per cent. of vacancies before the planting of the current season had been commenced.

The countings made on hill sides with eastern exposures were the following:—

Total number of planting-spots examined	...	...	...	1,162
Number of plants alive ...	...	...	...	834
Ditto failures ...	...	...	...	328
Percentage of plants alive ...	...	...	72	100
Ditto failures ...	...	...	28	

On hill sides with western exposures and steep inclines:—

Total number of planting-spots examined	...	...	...	1,114
Number of plants alive ...	...	...	...	593
Ditto failures ...	...	...	...	521
Percentage of plants alive ...	...	...	53	100
Ditto failures ...	...	...	47	

The expenditure during the year under notice on this plantation was high, for the above reasons, and on account of the excessive growth of the jungle,—it amounted to Rs. 585-2-6, or Rs. 29-4-1 per acre.

Besides this, there was an expenditure of Rs. 24-9-0 on nurseries, for filling up vacancies in all the Teak plantations.

85. Sissu plantation, area 20 acres.

No extension was made in this plantation, as it is very low and subject to inundation. Large nurseries of Sissu have, however, been established, and the plants raised are healthy and vigorous. The strongest were used already last year for filling up vacancies in this plantation and for planting with Teak. The growth of Sissu is everywhere satisfactory. The expenditure on Sissu during the year, including nurseries, was Rs. 138-8-3.

Yield and Working.

86. In the Gauháti forest division, 408 Sâl-trees were felled by Government agency in the Patan reserve for sale in the Kukramara and Dhubri timber-depôts. The Forest Department also felled 300 Sâl-trees in the Ranee unreserved or district forests, in charge of the Deputy-Commissioner of Kámrúp, as there was a want of Sâl timber in the station of Gauháti, and the cost of bringing it from the reserved forests would have been so high as either to prevent it being sold at all, or this would have had to be done at a loss to the department. One Ahoy-tree was felled for specimen wood for engraving blocks and two Sâm-trees for sample sleepers.

87. The timber in hand was—

	Logs.	Pieces.
At the commencement of the year	331	.....
Received during the year	82	404
Total	413	404
Sold during the year	10	.....
Used in the Gauháti division by the department ...	.....	108
Transferred to the Goálpára division for use by the department.	120	.....
Grand Total	130	108
Balance remaining in hand at the close of the year...	283	296

From the above figures, it will be seen that but little timber was sold, which is accounted for by timber-traders not caring to come higher up the Brahmaputra if they can secure timber in the Goálpára district, for which reason it is intended, as already stated, to float in future all timber from the Gauháti division, which is not required locally, to the general sale-depôt established at Dhubri.

88. The demand for trees sold standing in the forest to purchasers who remove them is also increasing in the Gauháti division, and has risen in the year under review to 400, as compared with 65 sold in the previous year.

Financial Results.

89. The Gauháti division is the only one in the forests of which there is still a considerable number of Sâl-trees above 5 feet in girth, and, as there is a ready sale for Sâl timber in the Goálpára district, it is hoped that this division will in a year or two pay its way.

In the year under notice there has been a deficit of Rs. 12,373, as shown below; but this is, as already stated, to be attributed to the little demand for timber so high up the Brahmaputra, as well as to the want of elephants, which, although there was sanction for them, are not to be purchased without great delay, if this is done judiciously.

90. The receipts and charges in the Gauháti division in the last two years were the following :—

	1875-76. Rs.	1876-77. Rs.
Receipts	5,378	2,983
Charges { A	8,121	8,738
Charges { B	3,509	6,618
Total charges	11,630	15,356
Deficit	6,252	12,373

The following table exhibits the transactions of the year :—

	Receipts.		Charges.	
		Rs.		Rs.
I. Departmental timber operations	I. and III.	268	A I., III., half of VI. and B.....	6,072
II. Other revenue	II., IV., and V.	2,715	A II., IV., V., IX., one quarter of VI., and B.	2,762
III. Formation, protection, and improvement of the forests.	.....	.....	A VII., VIII., one quarter of VI., and B.	6,522
	Total	2,983		15,356

Tezpur Division.

Area and Boundaries.

91. The area of the reserves in this division was :—

	Square miles.
At the commencement of the year	132·05
To this has been added the Charduar Rubber plantation reserve, west of the Deputa river, transferred from the charge of the district officer	46·46
The Nowduar reserve	82·
Total area.....	260·51

A short description of the Nowduar forest is given in the register of reserves attached to his Report,—Appendix I. The portion of the Charduar reserve which was transferred

from the district officer to the Forest Department will in future be quoted as the second, or western, part of No. V.—The Charduar Rubber plantation reserve in the Darrang district.

92. The boundary-marks of the Balipara and Khaling Duar reserved forests were repaired, and the former also cleared as a fire-line. A beginning was made in making the road along the southern boundary of the Charduar Rubber plantation reserve, which is to serve both as boundary and plantation road. The length completed this year is nearly two miles, and extends as far as the Moran Pokri.

Protection and Improvement.

Permanent establishment.

93. The protective establishment sanctioned for the Tezpur division is the following:—

One forest-ranger. One forester. Nine watchers.

The forester is exclusively employed on the Charduar Rubber plantation, and is quite insufficient for this work now, so that the forest-ranger has of late been almost exclusively employed on this work also, instead of assisting the divisional officer in the protection and working of the reserves. This is not how it should be, and an additional forest-ranger and more watchers are urgently required for the plantation work, and will be applied for.

Fire-protection.

94. The area to be protected against fire in the Tezpur division is not very large; but it is of great importance, since it is hoped that the southern portion of the Balipara reserve, which consists chiefly of grass land, with only about a square mile of Sâl in patches on it, will by these means be converted into a Sâl forest, which would be of very great value, as there is no other Sâl, except the 50 acres comprised within the Garumari reserve, in the Darrang district. The efforts made by the Forest Department have been successful during the year, for, although some Akhas, who had come on a visit to the plains, fired the grass within the reserve, it was soon got under before it spread into the forest, and no damage was done.

The Garumari Sâl forest was also protected successfully by a fire-line 200 feet in width.

95. The experiment of planting Sâl has been successful; but the young trees are very small, and have made very little growth. This was to be expected, since it is but natural that the trees might take a year or two to form new roots in the ground, before making vigorous growth. The experiment is being continued during the current year.

Charduar Caoutchouc plantation.

96. The Caoutchouc plantation in the Charduar was extended by 110 acres, surveyed, divided into eight compartments, the planting-lines and compartments marked with numbered posts, and a map on the scale of 16 inches to the mile prepared, showing in detail the area planted, area prepared for planting, and area on which the lines for planting have still to be cut, by which the control of this interesting and important work is made very easy. Mr. D'Arcy deserves credit for the care he has bestowed on the survey and mapping of the Charduar plantation.

97. The planting of Caoutchouc-trees (*Ficus elastica*) has not as yet emerged altogether from the experimental stage, for, although no doubt remains that the tree will grow most luxuriantly in the locality chosen, the different ways in which the young trees have been planted did not all succeed equally well. So, for instance, the plants planted in cane baskets in the forks of trees, although many of them are alive and healthy, they remained stationary or almost so, and made only one or two leaves during the year. Many of the trees planted simply in the ground like other trees, also did badly, and although this has partly to be attributed to the inferior stamp of rooted cuttings produced during the first two years, there is no doubt that Rubber-trees should not be planted in this way.

98. The trees planted on low split stumps, or in earthenware cylinders on low stumps of trees, on piles of wood put crossways and mixed with earth, and on small mounds of earth about 2 to 3 feet in height, have all done exceedingly well in the lines cleared through the forests for them, and all plants will in future be planted on mounds of earth, stumps, piles of wood, or whatever is most handy, raised about 3 feet above the ground.

Trees best suited for planting.

99. The experience gained during the year under notice has confirmed the opinion already expressed in last year's report,—that it is not advisable to transplant the young trees until they are two years old, which applies to both cuttings and seedlings, and it is intended to stop transplanting for a year, until an ample supply of young trees is in stock in the nurseries, as no doubt the death of many of the young trees subsequent to transplanting was caused by their having been transplanted too early.

100. This brings us to the propagation of *Ficus elastica*, regarding which even more has yet to be learned, for, although cuttings of vigorous top-shoots, cut and put in the ground before they have started new growth, in December and January, make roots easily enough, such vigorous shoots are not to be had in large quantities, besides which, even the best cuttings do not transplant so well as seedlings, so that our chief efforts must henceforward be to raise young Rubber-trees from seed.

Propagation.

101. To do this on a large scale is neither by any means a very easy matter, for, although the seed germinates freely enough, the young seedlings die in great numbers within the first few days, which has especially been the case in the year under notice. Mr. D'Arcy attributes this chiefly to the sun, and the heavy and sudden downpours of rain, whilst the forest-ranger thinks it is due to ashes, which had been brought on to the beds with the charcoal. It may also be possible that, as this year's nursery was new, the freshly turned-up soil has not been as suited as soil which has been exposed to the atmosphere for a year or so. All this shows that we are still experimenting, and that, although we are right in all the main points, much detail has yet to be learned. However, plantation and nurseries are now of such a size, and have been so well arranged as to give all possible facility for watching and observing, and within another year or two everything ought to be perfectly clear. A very exceptional flood inundated the old nursery, and killed many of the seedlings, so that it has been abandoned.

102. The new nursery made during the year measured 2 acres, and contained 120 beds, each 120 feet long and 4 feet broad, and raised one foot. Of these beds, 30 were provided with artificial shade during the middle of the day, and used for cuttings, of which 12,864 were made. Of these, 3,052 are alive, this is only 23 per cent, which may seem little; but, with the inferior material as yet procurable from the old indigenous trees, most of which is infested with insects and otherwise diseased when cut off the trees, we cannot hope to do better until the cuttings can be obtained from our own young trees grown in the plantation. Of the remaining beds, 88 were prepared for seed with 317 maunds of small charcoal, which was mixed with the soil to a depth of about 3 or 4 inches.

New nursery.

The seed was sown at different intervals between the 16th of February and the 21st of May. The coolness of the season delayed the germination of the seed, which did not happen freely until 21st of May, but, from some cause or another, not yet quite clear, many of them died a few days after. However, the number now alive is 8,048, and they are doing well, and it is hoped that in the current year, now that the soil in the nursery has been longer exposed to the air, and if the charcoal is mixed more with the soil, and a little side shade used, more favourable results will be obtained in the current year. A small quantity of seed was again sown on earth only, without charcoal, but on this all the seedlings perished.

Condition of the plantation.

103. The transplanting in the year under notice was done immediately after the rains. The countings made showed the following results:—

Total number of planting-spots examined...		1,642
Number of plants alive		1,495
Ditto failures		147
Percentage of plants alive	91	100
Ditto failures	9	

These failures consisted almost exclusively of cuttings, whilst on 314 planting spots, where nothing but seedlings had been used, only three failures were found.

Countings made all through the plantation showed the following results :—

Total number of planting-spots examined...		5,982
Number of plants alive		4,899
Ditto failures		1,083
Percentage of plants alive	82	100
Ditto failures	18	

These vacancies were distributed in the different compartments as follows:—

No. of Compartment.	Number of vacancies.	Number of plants alive.	Total planting spots.	Percentage of failures.
1	247	713	960	25·73
2	212	833	1,045	20·29
3	89	842	931	9·56
4	144	1,245	1,389	10·37
5	268	796	1,064	25·19
6	114	454	568	20·08
7	9	16	25	36·
8	.....	.....	.....	.....
Total	1,083	4,899	5,982	18·10

104. The growth of the trees in the lines is, generally speaking, healthy and vigorous. One of the trees measures already twenty-four feet in height, and there are many measuring sixteen to twenty feet. It would be premature to judge by the average height of the trees now in the plantation, or by the growth obtained hitherto, what Rubber-trees will do in future, since many of the young trees were sickly, and some of them are so now, as is usually the case in starting experimental plantings of any sort, and when everything has to be learned by degrees as experience is gained.

Time for transplanting.

105. For the present, October is still believed to be the best time for transplanting; but this view may be modified as we get better and older plants for transplanting, when it will probably be found that almost any season will answer.

106. The deer proved here as troublesome as in the Kulsi plantation, and more expensive fencing had to be resorted to to protect the plants. The inspection-paths in the lines, as well as the plants themselves, were cleared, and the compartment lines were opened out to a greater width and made fit for riding.

107. The total area under plant, exclusive of the experiment of planting on trees, is at present 430 acres, and the area prepared for planting is 139 acres. Mr. D'Arcy has had great difficulty in procuring local labour, which was very unfortunate; but, as he gets more accustomed to the people, this will probably improve, and is much to be desired, because the work in these Rubber-plantations will have to be done chiefly by this, since there is no work for women, and imported labourers of the class which would be suited for this work do not come to Assam without their women, and the latter can earn as much as the men in tea plantations.

The Para Caoutchouc-tree.

108. On the 8th of February, 1877, a Wardian case with thirteen healthy plants of *Hevia Braziliensis*, the Para Caoutchouc-tree, were received from the Calcutta Botanical Gardens. This case was, with one of the lids off, placed in the nursery close to a fence eight feet high, so as to have side shade. After four days the plants were taken out, and the flower-pots removed carefully without disturbing the roots in any way; they were then planted in a carefully-prepared bed in the same situation. Soon after transplanting, the leaves turned white and dropped off, and subsequently the wood of the young trees withered away gradually, and by July there was not one of the plants alive. This failure had been anticipated, and is attributed to the comparatively low temperature in Assam.

109. The expenditure during the year on the Charduar Caoutchouc plantation has been the following:—

	Rs.	As.	P.
Formation	2,730	8	3
Improvement and conservation	963	3	0
Total ...	3,693	11	3

The Bamuni Hill plantation.

110. Of the small experimental Caoutchouc plantation on the Bamuni Hill, near Tezpur, two acres were abandoned, as a foot-path leading to the Bhairabi temple had been enclosed, and it was desirable not to have any outsiders passing through, since there is always some chance of their firing the grass. All the young Rubber-trees from the abandoned area were used for the filling up of vacancies on the remaining eight acres. Nearly all the young trees burnt in the previous year made young shoots, and are healthy now, although the growth is very slow.

The expenditure on this plantation during the year was Rs. 55-11-6.

Yield and Working.

111. The Sâl forests in the Tezpur division are extremely limited, and, for this reason, purchasers are not permitted to enter them to fell and remove timber; but all timber work, including the removal of dead wood, from the Sâl forests is carried out by the Forest Department. During the year under notice, 88 Sâl trees were felled in the Balipara Sâl forest, and nearly all dead Sâl-wood worked out. Other kinds of timber were also worked out in the log on indent, and some conversion of Ajhar-trees into planking for bridges, for which there is a demand, was carried on during the year, and ten trees of other kinds than Sâl were sold standing in the forest.

The timber in hand was—

	Logs.	Pieces.
At the commencement of the year	...	37
Received during the year	174	1,780
Total ...	174	1,817
Sold during the year	132	473
Used by the department	...	161
Lost in transit	6	4
Total ...	138	638
Balance remaining in hand at the close of the year ...	36	1,179

Here also the sale of timber is very uncertain, although the local demand is greater them in the Gauháti division. Wood of other descriptions than Sâl will be worked out as an experiment, and be sent to the Dhubri depôt, with a view of selling it there to the Bengal timber-traders.

Financial Results.

112. The Tezpur division will always be an expensive one, on account of the Caoutchouc plantation in the Charduar; but, making due allowance for this, and if a demand for the woods from the mixed forests is created at the Dhubri depôt, the deficit, which has been large this year on account of the purchase of elephants and buildings, ought to become steadily less every year.

The receipts and charges, as compared with the previous year, were the following:—

	1875-76. Rs.	1876-77. Rs.
Receipts	1,896	3,204
Charges A	12,093	18,874
Charges B	4,514	4,306
Total Charges ...	16,607	23,180
Deficit ...	14,711	19,916

The following table exhibits the transactions of the year :—

	Receipts.		Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III.	3,178	A I., III., half of VI., and B.....	9,130
II.—Other revenue.....	II., IV., and V.	26	A II., IV., V., IX., one quarter of VI., and B	3,810
III.—Formation, protection, and improvement of the forests	.....	....	A VII., VIII., one quarter of VI., and B	10,740
		3,204		23,180

Golághát Division.

Area and Boundaries.

113. The area of the reserves in this division remains 454·56 square miles.

114. The boundaries of the forests are nearly all natural ones, such as rivers and the ridges of hills. The boundary-mounds which exist were all repaired during the year.

Protection and Improvement.

Permanent establishment.

115. The protective establishment sanctioned for the Golághát division is the following :—

One forest-ranger.
Eleven watchers.

This is also barely sufficient, and was specially not so during the year under review, because the officer in charge of this division was absent on leave to Europe, and there was no other officer available to take his place. The great danger here is that some of

the jhúming hill tribes may descend into these forests to start cultivation, and although, as a matter of course, great vigilance and watching is necessary to guard against this, the wish of Government to preserve these forests is getting familiar amongst the people, through the constant reminders given them by the protective forest staff, and they find out by degrees that they will get into serious trouble for cutting down the forests instead of turning back on to their old jhúms. Still, the comparative tranquillity enjoyed by the people now all along the foot of the Nága Hills is a temptation, and it is certain that, had these forests not been declared State forests when it was done, a great part of them would now be covered with charred stamps and charred trunks, instead of with growing trees.

An experimental sowing of Nahor (*Mesua ferrea*) was made in the Nambor reserve, which has succeeded so far admirably, there being about 30,000 young Nahor-trees alive and doing well. It is intended to go on steadily with this work in future, if funds are granted for the purpose. The expenditure during the year on this experiment has been Rs. 69-12.

The inspection-huts at the control-stations on the rivers Dayang, Dhansiri, and Daigurung, and the roads connecting them, were all repaired.

Yield and Working.

116. The timber work done by Government agency in this division has been small, since there was little demand, and none of the woods from these forests are brought to depôt except on indent. The number of trees felled was 93 Nahor and 107 Ajhar, but none of these were brought to depôt before the close of the year. It is intended to commence the experimental cutting of short logs for boat-building in these forests during the current year, for sale to the Bengal timber-traders in the Dhubri depôt. The cutting of planks for bridges will also be commenced. The timber in hand was—

	Logs.	Pieces.	Boats.
At the commencement of the year ...	42	...	...
Received during the year... ...	118	...	2
Total ...	160	...	2
Sold during the year	...	...	2
Balance remaining in hand at the close of the year	160	...	...

No trees were sold standing in the forests to purchasers.

Financial Results.

117. In the Golághát forest division, no expensive measures are necessary for the present, since the boundaries are for the most part natural ones, surveyed by the Topographical and Revenue Survey Department, and, as the demand for wood is not more than what can with safety be removed from the forests without trenching on the capital of growing material, there is no great urgency for valuation surveys. Under these circumstances, this division ought also to pay its way very soon, especially if the timber-traders from Bengal can be induced to buy, besides Sâl, timber of the kinds growing in these forests, which they will have to do sooner or later, since the amount of Sâl produced is not equal to the demand.

The receipts and charges as compared with the previous year were the following :—

	1875-76. Rs.	1876-77. Rs.
Receipts	3,137	658
Charges ... A	2,010	1,172
Charges ... B	4,157	1,867
Total charges ...	6,167	3,039
Deficit ...	3,030	2,381

The following table exhibits the transactions of the year:—

	Receipts.		Charges.	
		Rs.		Rs.
I. Departmental timber operations	I. and III.	510	A I., III., half of VI., and B.	1,361
II. Other revenue	II., IV., and V.	148	A II., IV., V., IX., one quarter of VI., and B.	610
III. Formation, protection and improvement of the forests.	.....	.....	A VII., VIII., one quarter of VI., and B.	1,068
		658		3,039

Cachar Division.

Area and Boundaries.

118. No forests had been declared reserves in Cachar before the commencement of the year under notice. The forests gazetted during the year are the following :—

I.—The Upper Jiri Reserve,	area	24	square	miles.
II.—The Lower Jiri	„	„ 14		„
III.—The Barak	„	„ 67		„
IV.—The Sonai	„	„ 18		„
V.—The Katakhal	„	„ 80		„
VI.—The Dhaleswari	„	„ 33		„
VII.—The Inner line	„	„ 509		„
	Total	„ 745		„

These forests are described in the register of reserves attached to this Report, Appendix I. Maps of all the reserves, on the scale of one inch to the mile, are filed in the office of the Deputy-Conservator of Forests, Assam, the divisional Forest officer, and in the office of the Deputy-Commissioner of Cachar.

119. The northern boundary of the Upper Jiri reserve has been demarcated in a substantial manner with twenty-nine numbered boundary-posts surrounded by boundary-mounds. The grants and other settled lands which adjoin or are included in the reserves were surveyed by the Revenue Survey Department, and are demarcated. Maps of all these lands on the scale of four inches to the mile, or larger, are filed in the office of the Deputy-Commissioner of the district, and of the Deputy-Conservator of Forests, Assam.

120. A more substantial demarcation of all the settled lands adjoining or included in the reserves has been commenced during the year, and the northern boundary of the Alni grant has been completed.

Demarcation.

Protection and Improvement.

121. The protective establishment sanctioned for the Cachar division is the following :—

Permanent establishment.

Conservancy Establishment.

One forest-ranger.
Nine forest-watchers.

Toll-station Establishment.

One toll-collector.
Three toll-watchers.
One manjee.

These men do what they can; but they are overworked, and consequently there is a perpetual changing, which is very detrimental to the Government interest, and it must be obvious that this is not economy. An increase of the subordinate staff in the Cachar division is therefore very necessary, if the protection of these forests is to be carried out effectually, and the necessary proposals will be submitted.

122. Here, in the Cachar division, the greatest danger to the forests is that of jhúming, as this mode of cultivation, carried on by the "Kukies," is a most destructive one, since these people will always cut down the best forest they can get, instead of turning back to their old jhúms, as the Nágas and Cacharies do; and there are many Kukies all around the reserves, and a few of their villages even inside the reserves. The latter have been demarcated, and the people

Jhúming.

been enjoined that nothing but permanent cultivation within the marked area will be permitted, and that if they want to jhúm, they must do this outside the reserves.

In the Lower Jiri reserve, there is especially great danger of jhúming, on account of the proximity of Lakhipur and numerous smaller villages; but strict injunctions have been given that they must confine jhúming to the western slopes (those nearest their villages) of the Ramphan range, and on no account cross the ridge into the reserve.

Yield and Working.

123. No timber operations are carried on by Government agency in the Cachar forest division for the present, but the license system formerly in vogue has been continued, and toll is levied at the rates quoted in para. 60 of last Annual Forest Report on timber and other forest produce exported from Cachar at the Sealtek toll-station, which, during the year under notice, has for the first time been managed by the Forest Department. Much intrigue has been going on about this, which it is supposed originated with the former lessees of this toll-station, who were hoping to get the collection of forest tolls again into their hands. The consequence of this has been that there was a falling off in the felling and export of timber from Cachar, which, however, is only a temporary consequence of the change of system, as may be predicted from the number of licenses to cut timber and bamboos taken out this year, and from the fact that men who were anxious to get the collecting of tolls have offered to pay Rs. 20,000, or about double what was collected during the year under notice, and still to lower the rates of toll to one-half. The collection of forest dues by Government agency is very necessary, to obtain reliable statistics regarding the timber trade generally, since the very limited permanent Forest establishments in the Cachar division do not permit as yet the introduction of the system of selling trees standing in the forests. No forest dues are levied on timber and other forest produce, except charcoal, if consumed in Cachar above the Sealtek toll-station.

124. On application being made to the divisional Forest officer, licenses are granted to cut timber for six months on the payment of one rupee for each person. Similar licenses are granted for elephants for twelve months on the payment of one rupee for each elephant, and all timber, bamboos, &c., exported from Cachar pays duty and receives a pass at the Sealtek toll-station. During the year under notice, the following licenses for the cutting of timber, bamboos, &c., &c., and for elephants dragging timber, were granted.

	Licenses for cutting timber, bamboos, &c.	Elephant licenses.
April, 1876	28	4
May, „	76	4
June, „	39	4
July, „	180	11
August, „	35	2
September, „	422	9
October, „	315	8
November, „	124	15
December, „	13	2
January, 1877	32	3
February, „	92	8
March, „	155	11
Total	1,511	77

125. The quantities of forest produce, including that from foreign and private forests, which passed the Sealtek toll-station each month, were the following :—

Month.	Logs.	Posts and planks.	Bamboos.	Canes in bundles.	Grass in rafts.	Charcoal in maunds.	Amount realized. Rs. A. P.
April, 1876	126	51	6,100	825	1	.....	464 1 9
May, „	36	82	14,800	1,275½	3	.....	162 3 10
June, „	213	36	28,000	451½	1	.....	894 5 9
July, „	281	178	2,000	1,495	.....	8	706 3 4
August, „	387	68	46,500	1,678	.....	300	197 6 11
September, „	587	142	12,900	175	.....	.....	1,023 5 7
October, „	888	31	45,200	1,225	16	.....	1,532 10 11
November, „	1,581	32	57,760	985	11	.....	3,815 5 8
December, „	246	99	3,150	1,700	16	.....	350 10 6
January, 1877	136	9	600	750	58	.....	206 2 7
February, „	1,137	41	.....	136	10	.....	39 4 3
March, „	1	202	22,400	1,030	27	.....	147 6 5
Total	5,619	967	2,34,410	11,726	143	308	8,639 3 8

Financial Results.

126. As already stated, there has been a decrease in the receipts, owing to the change of system. Until the commencement of 1876-77, nearly all the income from the Cachar forest fell to the timber-traders, whilst the State received next to nothing from its extensive forests. With the introduction of stricter conservancy and an increased expenditure, the duty on timber was collected more carefully according to its cubic contents, and the rates slightly raised, so as to give the State some return for the large quantities of timber, bamboos, and other forest produce, which were annually removed from the Government forests; and, although the rates of tolls levied at Sealtek are very light, yet, naturally enough, timber-traders find that the profits do not come to them in as large a proportion as formerly, and so have slackened their work (as they can well afford to do, considering the fortunes they had made before), in the hope that by doing so they might get it again all their own way. Hence, the decrease in the receipts, which, however, is only temporary, since, as already stated, the number of licenses taken out in the current year show an increase, as compared with the number of licenses granted for the same period in 1876.

The expenditure has naturally increased with the introduction of forest conservancy in Cachar, so that the surplus is very small in the year under review; but, with the great demand there is for timber, there is no doubt that it will increase annually, and that it will be permanent, whilst, at the same time, the threatened destruction of these important forests is no longer possible.

The receipts and charges in the Cachar forest division during the last two years were as follows :—

		1875-76. Rs.	1876-77. Rs.
Receipts		17,012	10,258
Charges	A	113	1,449
	B	331	8,133
	Total charges	444	9,582
	Surplus	16,568	676

The transactions of the year are shown in the following table, which, however, like the general table given in paragraph 47 of this Report, would have been a more correct representation of the financial results if the charges had been apportioned differently, and no part of A VI. and B. had been entered against "I.—Departmental timber operations," since there are none, but had been equally divided between "II—Other revenue," and "III.—Formation, protection, and improvement of the forests."

	Receipts.		Charges.	
		Rs.		Rs.
I. Departmental timber operations	I. and III.	27	A I., III., half of VI., and B.	4,358
II. Other revenue	II., IV., and V.	10,231	A II., IV., V., IX., one quarter of VI. and B.	2,317
III. Formation, protection, and improvement of the forests.	.....	.....	A VII., VIII., one quarter of VI. and B.	2,907
		10,258		9,582

CHAPTER III.

UNRESERVED OR DISTRICT FORESTS.

Sylhet district.

127. The investigation of the claims of certain holders of decennially-settled estates, and of certain holders of ilam lands, to large tracts of forests in the south-eastern corner of the Sylhet district, near Chargola, alluded to in paragraph 118 of the Annual Forest Report for 1874-75, and in the Chief Commissioner's Resolution on that Report, was carried out by the Settlement Officer and the Assistant-Conservator of Forests in charge of the Cachar forest division conjointly. These officers met on the spot, and discussed the boundaries to be adopted for the Government forests. The Settlement Officer reported that no persons had any right to these forests, that no privileges were granted in them to anybody, and that they were the exclusive property of Government. Proposals regarding these forests were accordingly submitted, and approved of by the Chief Commissioner, and they have since the end of the year been gazetted as Government open forests, to be managed by the Deputy-Commissioner of Sylhet, as the permanent establishments at present sanctioned in the Forest Department are insufficient to take charge of any more forests. They are intended to be declared reserves as soon as an increased establishment is sanctioned, if no further claims are brought forward by private individuals within the next year or two.

Lakhimpur district.

128. The Chief Commissioner ordered during the year a further examination of the forests in the Lakhimpur district, with a view of defining the boundaries of those tracts which were to be declared Government forests, as this could now be done without compensation having to be paid to any one, and without their value having first been diminished by jhúming, since their possession by Government is as yet absolute and unrestricted by any rights. These orders were carried out by the Deputy-Conservator, and proposals regarding them have since the end of the year been submitted to the Chief Commissioner, and are under consideration.

Khási and Jaintiá Hills district.

129. Colonel Keatinge inaugurated a most important measure as regards forest conservancy in the Khási and Jaintiá Hills, by insisting on the insertion of a condition in the "sunnuds," by which the selection of the seims, or chiefs, of any State in these hills is acknowledged, to the effect that such seim will cause any areas that may be necessary, or may be defined by the British Government, to be set aside for the growth of trees to supply building timber and firewood to the inhabitants of that particular State, and that efficient measures be taken to secure these areas against destruction by fire or by jhúming.

Under the above regulations, a great many small forests have been selected, which are described in a list attached to this Report as Appendix VII.

130. According to the established custom in the Khási and Jaintiá Hills, the Government has a right to half of the profits derived from the produce sold from such forests in these hills, over which private individuals have no proprietary rights, and the seims, or chiefs, are not permitted to alienate any property of their States, movable or immovable, which they may possess, or of which they may become possessed, as seims of any of the States in the Khási and Jaintiá Hills.

The question arose during the year in the Khási State of Nungspung what were to be considered the profits derived from the sale of different trees, and it was ruled by the Chief Commissioner that the full profit on every tree of the undermentioned descriptions should be reckoned as follows:—

	Rs.	As.
Sâl, per tree	6	0
Nahor „	5	0
Sam „	4	0
Other trees	2	8

It was further ordered that no tree less than 3 feet in circumference, measured 4 feet from the ground, should be cut.

The full profit on a Sâl-tree was subsequently changed to Rs. 10, instead of Rs. 6, as first ruled.

Rules for felling timber in district forests.

131. The Chief Commissioner, in submitting for the information of Government the rules laid down by him for the regulation of fellings of reserved kinds of trees in the forests under the Deputy-Commissioners, which were quoted in para. 86 of the last Annual Forest Report, asked the

sanction of Government for the payment of 10 per cent. to the mouzahdars on any forest revenue they might collect, with a view to more effectually stopping illicit felling, and to improve the status of the mouzahdars.

The Supreme Government approved of the above proposal; but at the same time pointed out that the list of reserved trees was large, and inquired if it could not be reduced. Accordingly, three separate lists of twelve kinds of trees in each, for Lower and Upper Assam, and the two districts of Sylhet and Cachar, were submitted, together with revised proposals for controlling the felling of trees, the making of charcoal, and the cutting of firewood for steamers and other commercial purposes, which are now under the consideration of the Chief Commissioner.

Revenue from indigenous lac.

132. An inquiry was instituted on the subject of raising a revenue from indigenous lac in the different districts of Assam, and the reports submitted by the Deputy-Commissioners and the Political Officer in Charge, Nága Hills, were to the following effect :—

Cachar.—No indigenous lac is collected, neither is it reared artificially.

Sylhet.—No indigenous lac is collected; it is reared artificially only on the permanently-settled lands of Latu, Nawakhali, Rajnagar, Hingajiya, and Lashkarpur, on the "Jhuri" (*Ficus cordifolia*).

Khási and Jaintiá Hills.—No indigenous lac is collected, and the quantity reared artificially is insignificant.

Gáro Hills.—No indigenous lac is collected; it is regularly reared artificially in the Damrah Duar on "Dhal," which is cultivated for the purpose.

Goálpára.—No indigenous lac is collected in the Eastern Duars, and the rest of the district is permanently settled.

Kámrúp.—Indigenous lac is only collected to a limited extent, and only a small revenue could be raised from it; it is regularly reared artificially, chiefly on Pakri (*Ficus cordifolia*).

Nowgong.—Indigenous lac is collected to a limited extent, and a small revenue might be raised from it.

Sibságar.—Indigenous lac is not obtainable in such quantities that a revenue could be raised from it.

Lakhimpur.—No indigenous lac is collected, neither is it reared artificially.

Nága Hills.—Indigenous lac is collected only by the Mikirs in very small quantities, not sufficient to raise a revenue from it.

Darrang.—Considerable quantities of indigenous lac are collected in the Charduar, in other parts the collection of indigenous lac is small. It is regularly reared artificially, chiefly on Pakri (*Ficus cordifolia*).

The Chief Commissioner decided that the best way of ascertaining if a revenue can be raised from indigenous lac would be to sell the right to collect such lac by public auction, and that any bid, even though it was very small, should be accepted in the beginning. A form of license, to be used for this purpose, was issued accordingly in Circular No. 41, dated the 9th June, 1876, to all Deputy-Commissioners and the Political Officer in Charge, Nága Hills. This form of license for collecting lac is attached to this Report as Appendix VIII.

Tea-trees in the Nága Hills.

133. The Political Officer in Charge, Nága Hills, in his Annual Administration Report, brought to notice the existence of large Tea-trees in the Nága Hills; and, when further inquiry was made by the Chief Commissioner, the following interesting information was furnished by Mr. Carnegy.

"On a visit being made on the 16th July to the group of trees noticed by me in February last, it was found, I am sorry to say, that the larger ones had been cut down by Nágas, and carried away for firewood. Of the trees left, the largest measured 17 inches round the stem two feet from the ground, and 36 feet 4 inches in height, the spread of the branches covering a circle of 20 feet in diameter. The second largest measured 13 inches in circumference and 35 feet 10 inches in height with branches covering a circle of 19 feet in diameter. There were several other trees about the same size, all of them quite young. Of the stumps left of the old trees, the largest measured 2 feet 10 inches in circumference at two feet from the ground, and from description, the tree must have been at least 60 feet high. There were other stumps, evidently of trees about this size; and I am informed that trees with a girth of at least 3 feet and 80 feet in height are to be found. The trees, however, are scattered about amongst forest with dense undergrowth, now at its thickest, and swarming with leeches, consequently, no extended search was made later in the season. However, I will have some of the large trees measured, and submit the result. The best Tea-trees grow in the land between the Burrail mountains and the outer range of hills on which the protected village of Razepema is situated.

This is an almost flat piece of country, about 12 miles in length and 6 in breadth, at an elevation of about 1,000 feet above sea-level, with a gradual slope down from the Burrail, that is, from south to north, so that the aspect is a northern one. The soil at the surface is rich vegetable mould resting upon fine red loam, which lies on gravel; through this at intervals small streams, running down from the Burrail, have cut their way, and so the drainage is perfect. The trees now measured were found not very far from Razepema; but the finest trees of all are said to be found further south, nearer the Burrail. I was under the impression that the Nágas would take some care of the Tea-trees, on account of the profit to be made from seed, but now find this is not the case, for it seems they frequently cut down trees merely to save themselves the trouble of climbing them to collect it. There is sometimes also wholesale destruction in jhúming. In future, I will do as much as is in my power to prevent the destruction of these valuable trees. Unfortunately, most of them are on ground belonging to Nágas at present independent."

Rhea cultivation.

134. A report on the cultivation of the Rhea plant in Assam was submitted by the Deputy-Conservator, in which it was explained that, although the climate in the Brahmaputra Valley was most congenial for the cultivation of this plant, it could not be cultivated sufficiently low in price in this Province, so as to permit the fibre being used to a greater extent in the manufacture of cheap articles, produced in large quantities, to make it a great staple and develop into a large trade. To do this, the rough fibre would have to be supplied at an average price of £30 to £40 per ton, whilst it cannot be produced in Assam at even double that rate at present. The much more profitable cultivation of tea will bar it against the employment of European capital; and, as regards the native inhabitants of the Province taking to it, the cultivation of Rhea is much more laborious than that of rice, whilst it would not give the cultivator a larger income from the same area than rice does.

Dye-stuffs.

135. A report was also submitted by the Deputy-Conservator on the dye-stuffs used in this Province. No dye-stuffs are manufactured in Assam at present for export.

The only raw-material for dyeing purposes exported from Assam to Calcutta, to the extent ofabout 1,000 maunds annually, is the Indian Madder or "Manjit," which includes both *Rubia Munjista*, and *Rubia cordifolia*. But a very small quantity of this is produced in the Province itself, on the Gáro, Khási, and Nága Hills, whilst the bulk of it is imported from the Bhutan and Akha Hills, only passing through the Province in the way of trade. It is estimated that only about 50 maunds are used in the Province itself.

With the exception of the "Ram Pat" (*Strobilanthes flaccidus*) and "Asu Gach" (*Morinda angustifolia*), of which a few plants are sometimes met with in the gardens near homesteads, there is no cultivation of plants for dyeing purposes carried on in Assam, and, in fact, the plains people either wear plain white cotton cloth or silk of the natural colours, such as Eri, Mugah, Maizankori, and Pat. Coloured borders worked into these cloths are for the most part woven with thread dyed either in Bengal or in Europe, and imported into this Province, which practice has been resorted to in late years as more convenient than home-dyeing, and on account of the brighter colours of the imported thread.

Exceptions to this are the Singphos, Phakials, and Khamptis, who prepare their own dyes, and have their cloth even woven in tartans, often very pretty, and the colours very permanent. Gáros, although wearing only the minimum amount of cloth possible, like to have it striped in different colours, and dye the thread for it themselves. From the above facts, it will be readily understood that Indian dyes, as produced in this Province have no chance against the imported dyes. Aniline dyes have not been introduced into this Province, as far as could be ascertained.

The plants from which dyes are extracted by the people are, with the exception of two (Nos. 8 and 9), all indigenous to the Province, and are the following :—

	Scientific names.	Assamese names.	Phakial names.	Gáro names.
1.	Strobilanthes flaccidus	Ram Pat	Hom.....	.....
2.	Morinda angustifolia	Asu gach	Kchai Tun	.....
3.	„ persicæfolia	„	.....	Chenung.
4.	Garcinia scanthochymus.....	Tepur	Ma-oh-la ...	.....
5.	Symplocos grandiflora	Bumroti	Moat Soom	.....
6.	Baccaurea sapida	Leteku.....	.....	.....
7.	Terminalia citrina	Hilika	.....	.....
8.	Psidium guava	Modhuriam	.....	.....
9.	Bixa Orellana.....	Jarat	.....	.....
10.	Albizzia odoratissima	Siris.....	.....	Sisoo.
11.	Eugenia sp.	Tolai jamu	.....	.....

District Officers' receipts and charges.

136. The receipts and charges on account of forest management by the district officers, as compared with the previous year, were the following:—

		1875-76. Rs.	1876-77. Rs.
Receipts		96,388	42,346
Charges { A		9,032	2,241
{ B		...	3,721
Total Charges ...		9,032	5,962
Surplus ...		87,356	36,384

The amounts of forest revenue realized by Deputy-Commissioners in the different districts were the following:—

		Rs.	As.	P.
Cachar district		5,936	1	0
Darrang „		6,123	7	2
Gáro Hills „		9,785	9	3
Kámrúp „		7,178	8	0
Khási Hills „		773	0	0
Lakhimpur „		2,992	10	0
Nága Hills „		42	0	0
Nowgong „		3,867	2	0
Sibságar „		5,647	13	0
Total ...		42,346	1	5

CHAPTER IV.

GENERAL REMARKS.

Permanent Establishment.

137. In November, 1875, the Deputy-Conservator submitted, in accordance with orders received from the Chief Commissioner, proposals for the permanent subordinate Forest establishments to be entertained in this Province, both in the Forest Department and under civil officers, at a cost of Rs. 1,979 per mensem, which, in obedience to the instructions of the Supreme Government, No. 290, dated the 3rd April, 1876, had to be reduced in revised proposals to a cost of Rs. 1,700 per mensem, on which finally the following permanent subordinate Forest establishments were sanctioned for Assam:—

Office Establishment.

	Rs.
Direction office	322
Cachar division	54
Goálpára „	44
Gauháti „	44
Tezpur „	44
Golághát „	44
Total ...	552

Forest and Depôt Establishment.

	Each. Rs.	Total. Rs.
One forest-ranger	80	80
Four „ „	50	200
Eight foresters	40	320
Three „	20	60
One manjee	12	12
Twelve watchers	8	96
Fifty-four „	7	378
Total ...	...	1,146
Grand Total ...	...	1,698

Travelling allowance.

138. It was brought to the notice of the Chief Commissioner that Forest officers whose head-quarters were not at stations were put to some expense when they had to travel to obtain medical advice, and that the Deputy-Accountant-General had ruled that travelling allowance for such journeys was inadmissable. On reference to the Supreme Government, it was decided that, when any public officer is compelled to leave a station where there is no medical officer, in order to procure medical advice, he may draw travelling allowance at the ordinary rates to and from the station where the nearest medical officer is located, but that halting allowance shall not be drawn while the officer is at the medical officer's station.

Accounts.

139. No changes were made in the keeping of forest accounts by Forest officers, or in the control over and classification of them by the Deputy-Conservator, and their audit and adjustment by the Deputy-Accountant-General. The keeping of separate forest accounts by civil officers was not introduced, as it was considered advisable to defer this until the New Forest Code, and the changes in the keeping of forest accounts generally were made on the 1st of April, 1877. Deputy-Commissioners were, however, directed to open a schedule for forest revenue in the following form, and to submit a copy of the same on the last working day of each month to the Deputy-Conservator, for information. This system was introduced with effect from the 1st of December, 1876:—

Assam Account Form No. 59.

Register of receipts on account of Forest Revenue at *Treasury during the month of* 18

Date.	From whom received.	Particulars.	Amount.	Daily total carried to Cash-book.	REMARKS.

In this schedule, all items of forest revenue are entered as they occur, without being classified. The entries in it are checked and classified by the Deputy-Accountant-General, who furnishes the Deputy-Conservator with a monthly classified statement of forest receipts and expenditure. Sales of forest produce by civil officers to public departments are reported to the Deputy-Conservator, and adjusted by him in the cash account of his office. Municipalities pay for forest produce sold to them in cash.

Deputy-Conservator's Tour.

140. This began on the 13th of November, 1876, when the Gauháti division was first inspected. It had been reported that there was no Rubber-seed to be had, which, however, on personal examination of the trees by the Deputy-Conservator, proved all wrong. The Rubber and timber plantations were carefully gone over. After this, the Rubber plantations and new nursery in the Tezpur division were visited, and some elephants which had been offered for sale inspected. From Tezpur, the Deputy-Conservator went to the Goálpára division, and remained there from the 1st to 23rd of December. After this, the country along the foot of the Bhutan Hills, in the Kámrúp district, was inspected, and the Dewangiri forests, on the outer hills, visited, when news of the death of the forest-ranger in temporary charge of the Gauháti division was received, which necessitated a return to this division.

On the 20th of January the inspection of the Tezpur division was commenced, and the forests along the foot of the Bhutan and Akha Hills in the Darrang district visited. On the 3rd of February the Charduar Rubber plantation was reached. After the inspection of this plantation and the fire-lines in the Tezpur division, the Darrang district was left on the 12th of February, when the inspection of the forests in North Lakhimpur commenced. On the 24th, the Lakhimpur district was left, and different small Sâl forests in the Nowgong district inspected, with a view of having them declared reserve forests; this was completed on the 6th of March, when the Gauháti division was again visited. After this, the Deputy-Conservator went to Sylhet, and consulted the Deputy-Commissioner and Settlement Officer, and then to the Cachar division, from where he returned to head-quarters on the 15th of April.

Live Stock.

141. The elephants have done well, and no casualties occurred during the year. They have, however, not received in all the divisions as much care and personal attention from the divisional officers as these valuable and useful animals require and deserve. It is hoped that matters in this respect will improve, as more experience is gained by the younger officers. A fortnightly return is submitted to the Deputy-Conservator for each elephant, in which the nature of the work done, the amount of work accomplished, the hours during which the animal was working, and its condition, is reported for each day separately. The buffaloes employed on timber work have also done well on the whole, especially when used for smaller sized timber, or heavy logs, if these were first taken by the elephants on to the dragging-path, because the buffaloes do not pull so well together as to get heavy logs over rough and difficult ground. This, however, no doubt originates in the fact that trained buffaloes are not to be had, and that men who can be induced to take charge of and to work them are extremely difficult to be got, and will not stay for any time, if they are expected to do a fair amount of work; in fact, Mr. D'Arcy reports that they are the worst of a very bad class. It appears from all accounts that the difficulty lies more with the men than the buffaloes, which is easily explained by the nature of the work, which is very laborious as compared with that in Tea plantations, and the demand for labourers on Tea gardens is very great. That buffaloes are most useful for dragging light logs, there is no doubt, and as more of these animals get trained, the result of their work will become more and more satisfactory.

Services of Officers.

142. The Goálpára forest division was in charge of Mr. W. R. Fisher during the whole year.

Mr. W. E. D'Arcy was employed in the same division from the commencement of the year until the 1st of June, 1876, by which time he had fallen seriously ill, and was on this account employed on special duty in the Gauháti division and the direction office from the 1st of June to the 7th of November, 1876.

The Gauháti division was in charge of Mr. A. J. Mein during the year, except from the 17th of December, 1876, until the 16th of January, 1877, when he had privilege leave.

The Tezpur division was in charge of the senior forest-ranger, Babu Joy Narayan Das, from the beginning of the year until the 7th of November, when Mr. W. E. D'Arcy took charge, and managed it for the remainder of the year.

Mr. W. Shakespear was in charge of the Cachar division during the whole of the year.

The Golághát division was without a superior officer during the year, and Forest-ranger Babu Prasunna Kumar Roy was in charge.

The Deputy-Conservator is satisfied with the work done during the year, considering the short time the two junior officers have been in this country, and has much pleasure in adding that Mr. W. R. Fisher has, as usual, greatly distinguished himself by his energy and industry. Among the subordinates, Babu Jay Narayan Dass's services have again been favourably reported on. Babu Chandra Bhuson Sen succumbed to an attack of cholera, and the department lost in him the most intelligent of the subordinate staff.

FORM No. 45.

Forest Department, Assam.—Area of Reserved Forests, 1876-77.

Division or Range.	Name of Forest.	Area on 1st April, 1876.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March, 1877.		No. and date of Notification of additions and transfers, &c.	Remarks.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
Direction	Khási and Jaintiá Hills— Saipung	—	—	50	32,000	—	—	50	32,000	Dated 26th July, 1876.	
Gauháti Division	Kámrúp district— Barduar	23·75	15,200	—	—	—	—	23·75	15,200		
	Pantan	12	7,680	—	—	—	—	12	7,680		
	Matiakhar	3·5	2,240	—	—	—	—	3·5	2,240		
	Kulsi plantation	5·5	3,520	—	—	—	—	5·5	3,520		
	Jara	1·62	1,040	—	—	—	—	1·62	1,040		
	Milmillia.....	2·18	1,400	—	—	—	—	2·18	1,400		
	Nowgong district— Kholahat	3·	1,920	—	—	—	—	3·	1,920		
	Deboka.....	0·81	520	—	—	—	—	0·81	520		
Tezpur Division ..	Darrang district— Balipara	87·85	56,228	—	—	—	—	87·85	56,228		
	Khaling duar..	9·75	6,242	—	—	—	—	9·75	6,242		
	Charduar	80	51,200	—	—	—	—	80	51,200		
	Bhamaraguri..	0·6	386	—	—	—	—	0·6	386		
	Garumari	0·32	205	—	—	—	—	0·32	205		
	Nowduar.....	—	—	82	52,480	—	—	82	52,480	Dated 31st Aug., 1876.	
Golághát Division	Nága Hills district— Nambor	389·55	249,318	—	—	—	—	389·55	249,318		
	Mikir Hill	65	41,600	—	—	—	—	65	41,600		
Goálpára Division	Goálpára district— Bijni duar	12·56	8,039	—	—	—	—	12·56	8,039		
	Chirang duar No. 1.	108·13	69,205	—	—	—	—	108·13	69,205		
	Ditto No. 2, ..	137·63	88,088	—	—	—	—	137·63	88,088		
	Ripu duar	65·05	41,635	—	—	—	—	65·05	41,635		
	Guma duar....	24·65	15,779	—	—	—	—	24·65	15,779		
Cachar Division ..	Cachar district— Upper Jiri	—	—	24	15,360	—	—	24	15,360	Dated 15th Mar., 1877.	
	Lower Jiri	—	—	14	8,960	—	—	14	8,960	"	
	Barák	—	—	67	42,880	—	—	67	42,880	"	
	Sonai	—	—	18	11,520	—	—	18	11,520	"	
	Katakhal	—	—	80	51,200	—	—	80	51,200	"	
	Dhaleswari....	—	—	33	21,120	—	—	33	21,120	"	
	Inner Line	—	—	509	325,760	—	—	509	325,760	"	
	Total.....	1,033·45	661,445	877	561,280	—	—	1,910·45	1,222,725		

Forest Department, Assam.—Area of Unreserved Forests, 1876-77.

Goálpára Division..	Goálpára district— Sidli duar	74·37	47,600	—	—	—	—	74·37	47,600*		* Gazetted as open forests.
Cachar Division ..	Cachar district— Within the Inner Line.	336	215,040	—	—	256	163,840	—	—†	Dated 15th Mar., 1877.	† 745 square miles were gazetted as reserved forest, the remaining 80 square miles are transferred to the district officer within revenue limits.
	Beyond ditto..	489	312,960	—	—	489	312,960	—	—		
Sylhet Division ..	Sylhet district— Langai and Singla forests.	273	174,720	—	—	—	—	273	174,720‡		‡ Proposed as reserves.
Civil Officers	Within Revenue limits— Goálpára.....	8	5,120	—	—	—	—	8	5,120§		§ Undefined forests protected by the Deputy-Commissioners and the Political Agent, Nága Hills.
	Kámrúp	81·5	52,160	—	—	—	—	81·5	52,160§		
	Darrang	319·08	204,211	—	—	82	52,480	237·08	151,731§	Dated 31st August, 1876.	
	Nowgong	52	33,280	—	—	—	—	52	33,280§		
	Sibságar	335	214,400	—	—	—	—	335	214,400§		
	Lakhimpur....	2,500	1,600,000	—	—	—	—	2,500	1,600,000§		
	Sylhet	27	17,280	—	—	—	—	27	17,280§		
	Cachar,.....	4	2,560	80	51,200	—	—	84	53,760§		
	Beyond Revenue limits— Khási and Jaintiá Hills.	150	96,000	—	—	50	32,000	100	64,000§	Dated 26th July, 1876.	
	Nága Hills	525	336,000	—	—	—	—	525	336,000§		
	Lakhimpur....	1,500	960,000	—	—	—	—	1,500	960,000§		
	Cachar.....	11	7,040	—	—	—	—	11	7,040§		
	Garo Hills	350	224,000	—	—	—	—	350	224,000§		
	Total.....	7,034·95	4,502,371	80	51,200	877	561,280	6,157·95	3,941,091		

FORM No. 46.

FOREST DEPARTMENT, ASSAM.—AREA OF PLANTATIONS, 1876-77.

Division.	Name of Plantation.	On 1st April, 1876. Area.	On 1st April, 1876. Total cost.	During 1876-77. Area added.	During 1876-77. Cost.	On 31st March, 1877. Total area.	On 31st March, 1877. Total cost.	Remarks.
	Kulsi Plantation.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	
Gauhati	Caoutchouc	65	1,496 3 9	10	209 0 3	75	1,705 4 0	
	Teak	73	5,402 12 5	....	872 8 9	73	6,275 5 2	
	Sisu	20	863 9 2	....	138 8 3	20	1,002 1 5	
	Chardwar Plantation.							
Tezpur	Caoutchouc	320	7,055 13 3	110	3,693 11 3	430	10,749 8 6	
	Bamuni Hill Plantation.							
	Caoutchouc	10	767 9 3	....	55 11 6	8	823 4 9	Two acres abandoned during the year.
	Makum Plantation.							
Golaghat	Teak	4	1,225 13 9	....	40 0 0	4	1,265 13 9	
	Khasi and Jaintia Hills District.							
Civil Officers	Shillong timber plantation	8½	742 9 9	....	.....	8½	742 9 9	
	Nongklao cinchona „	1⅛	672 0 0	....	100 0 0	1⅛	772 0 0	
	Total	502 1/6	18,226 7 4	120	5,109 8 0	619 1/6	23,335 15 4	

FORM No. 47.

FOREST DEPARTMENT, ASSAM.—AREA OF FOREST TRACTS PROTECTED FROM FIRE DURING THE DRY SEASON OF 1877.

Division.	Forest Tracts.	Up to 31st March, 1876. Area actually protected.	Up to 31st March, 1876. Total cost.	During the dry season of 1877. Area attempted to be protected.	Failures.	Actually protected.	Amount expended.	Total cost up to 30th June, 1877.	Year when protection commenced.
	Kámrúp District.	Acres.	Rs. As. P.	Acres.	Acres.	Acres.	Rs. As. P.	Rs. As. P.	
Gauhati	Bardwar	15,200	798 7 6	15,200	....	15,200	476 14 6	1,275 6 0	1873-74.
	Pantan	7,600	447 14 3	7,680	....	7,680	324 6 9	772 5 0	Ditto.
	Matiakhar	2,240	256 14 9	2,240	....	2,240	209 14 0	466 12 9	Ditto.
	Kulsi	1,520	236 15 9	3,520	....	3,520	436 6 0	673 5 9	Ditto.
	Jara	1,040	158 0 0	1,024	....	1,024	179 1 0	337 1 0	Ditto.
	Milmillia	20	164 2 0	1,344	....	1,344	206 4 3	370 6 3	1874-75.
	Nowgong District.								
Nowgong	Kholahat	1,908	104 9 0	1,920	....	1,920	68 2 0	173 5 0	1873-74.
	Deboka	520	7 0 0	518	....	518	116 0 0	123 0 0	Ditto.
	Darrang District.								
Tezpur	Balipara	576½	253 11 0	2,500	600	1,900	365 1 6	618 12 6	Ditto.
	Garumari	50	69 4 6	110	....	110	68 2 0	137 6 6	1874-75.
	Godipára District.								
Goálpára	Sidli	700	.....	27,146	6,930	20,216	494 14 3	494 14 3	1876-77.
	Guma	....	.....	15,779	15,779	....	130 14 6	130 14 6	Ditto.
	Pechadavery and Panbari	300	23 8 0	....	....	....	.....	23 8 0	1875-76.
	Khasi and Jaintia Hills District.								
Civil Officers	Shillong	3,600	198 5 0	3,618	....	3,618	714 5 4	912 10 4	1874-75.
	Total	35,274½	2,718 11 9	82,599	23,309	59,290	3,791 0 1	6,509 11 10	
							Charged in previous years		2,718 11 9
							„ 1876-77		2,811 13 4
							„ 1877-78 Gauhati Division ..		602 6 0
							„ Tezpur „ ..		73 6 0
							„ Goálpára „ ..		303 6 9
							Total		6,509 11 10

FORM No. 48.

FOREST DEPARTMENT, ASSAM.—PROSECUTIONS FOR BREACHES OF FOREST RULES, 1876-77.

Forest Division and Civil District.	Injury to forests by fire. Cases.	Injury to forests by fire. Persons.	Unauthorized felling or appropriation of wood and minor forest produce. Cases.	Unauthorized felling or appropriation of wood and minor forest produce. Persons.	Grazing without permission or in tracts in which grazing is prohibited. Cases.	Grazing without permission or in tracts in which grazing is prohibited. Persons.	Other offences. Cases.	Other offences. Persons.	Total. Prosecutions. Cases.	Total. Prosecutions. Persons.	Total. Convictions. Cases.	Total. Convictions. Persons.
					Darrang District.							
Tezpur Division	1	1	1	1	..	..	..	..	2	2		..
					Sibsagar District.							
Golaghat Division	..	.	4	37	..	.	.	..	4	37	4	37
Total	1	1	5	38	..	..	.	..	6	39	4	37

FORM No. 49.

FOREST DEPARTMENT, ASSAM.—SUMMARY OF REVENUE AND EXPENDITURE OF THE DIFFERENT DIVISIONS, 1876-77.

Budget heads.	Direction.	Gauhâti.	Tezpur.	Golâghât.	Goâlpâra.	Cachar.	Civil officers.	Total.
RECEIPTS.								
I.—Timber and other produce removed from the forests by Government agency—	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
a. Timber	—	268 0 0	3,178 0 1	510 0 0	11 12 0	—	—	3,967 12 1
b. Firewood and charcoal	—	—	—	—	—	—	—	—
c. Bamboos	—	—	—	—	—	—	—	—
d. Sandal-wood	—	—	—	—	—	—	—	—
e. Grass and other minor produce	—	—	—	—	—	—	—	—
II.—Timber and other produce removed from the forests by consumers or purchasers—								
a. Timber	7,755 0 0	2,642 14 0	26 0 0	—	14,344 0 0	9,335 15 3	37,372 8 5	71,476 5 8
b. Firewood and charcoal	—	—	—	—	—	40 8 0	737 10 3	778 2 3
c. Bamboos	—	—	—	—	—	—	—	—
d. Grazing and fodder grass	—	—	—	122 0 0	—	—	15 0 0	137 0 0
e. Other minor produce	—	—	—	25 8 0	—	556 13 5	3,368 7 3	3,950 12 8
III.—Confiscated, drift, and waif-wood	—	—	—	—	—	27 0 0	102 3 6	129 3 6
IV.—Revenue from forests not managed by Government—								
a. Duty on foreign timber and other forest produce	—	—	—	—	—	136 2 0	332 0 0	468 2 0
b. Revenue from shared and private forests	—	—	—	—	—	—	—	—
V.—Miscellaneous—								
a. Fines and forfeitures	—	—	—	—	—	—	50 0 0	50 0 0
b. Refunds	0 10 6	72 3 0	—	0 3 0	—	—	—	73 0 6
c. Other sources	—	—	—	—	7 8 0	162 0 0	368 4 0	537 12 0
Total Receipts	7,755 10 6	2,983 1 0	3,204 0 1	657 11 0	14,363 4 0	10,258 6 8	42,846 1 5	81,568 2 8
EXPENDITURE.								
A.—CONSERVANCY AND WORKS.								
I.—Timber and other produce removed from the forests by Government agency—								
a. Timber	—	749 13 9	2,562 4 3	208 2 0	166 13 6	—	—	3,687 1 6
b. Firewood and charcoal	—	—	—	—	—	—	—	—
c. Bamboos	—	—	—	—	—	—	—	—
d. Sandal-wood	—	—	—	—	—	—	—	—
e. Grass and other minor produce	—	—	—	—	—	—	—	—
II.—Timber and other produce removed from the forests by consumers or purchasers	—	—	—	—	109 7 3	23 13 9	106 8 3	239 13 3
III.—Confiscated, drift, and waif-wood	—	—	—	—	—	—	—	—
IV.—Revenue from forests not managed by Government—								
a. Duty on foreign timber and other forest produce	—	—	—	—	—	—	—	—
b. Revenue from shared and private forests	—	—	—	—	—	—	—	—
V.—Rent of leased forests and payments to shareholders in forests managed by Government	—	—	—	—	—	—	50 0 0	50 0 0
VI.—Live and dead stock—								
a. Purchase of cattle	—	2,000 0 0	6,500 0 0	—	2,915 0 0	—	—	11,415 0 0
b. Feed and keep of cattle	305 2 6	1,349 8 0	1,862 11 0	290 6 4	441 3 3	298 0 6	—	4,546 15 7
c. Plant, tools, and instruments	378 11 9	676 14 6	466 4 3	148 5 0	748 14 6	285 7 9	—	2,704 9 9
VII.—Communications and buildings—								
a. Roads and bridges	—	63 10 6	320 0 0	93 15 0	—	—	—	477 9 6
b. Buildings	315 0 0	610 4 6	2,635 9 6	184 9 0	2,489 10 0	118 2 9	25 0 0	6,378 3 9
c. Other works	—	—	85 11 0	—	—	—	—	85 11 0
VIII.—Demarcation, improvement, and extension of forests—								
a. Demarcation	—	74 13 6	106 2 3	54 3 0	75 13 0	543 11 6	—	854 11 3
b. Compensation for land and rights	—	—	—	—	—	—	—	—
c. Surveys and working-plans	—	113 3 6	76 12 9	—	776 6 9	—	3 0 0	969 7 0
d. Plantations	—	1,220 1 3	3,749 6 9	40 0 0	—	—	100 0 0	5,109 8 0
e. Protection from fire	—	1,415 4 6	359 13 6	—	322 6 0	—	714 5 4	2,811 13 4
f. Other works	108 2 9	363 1 6	113 6 0	119 4 0	202 6 6	66 3 3	1,179 8 9	2,152 0 9
IX.—Miscellaneous—								
a. Refunds	—	—	—	1 1 6	—	99 10 0	63 0 0	162 10 6
b. Law charges	—	—	—	—	—	—	—	1 1 6
c. Other charges	152 6 10	101 5 0	35 15 6	32 10 3	42 3 0	13 11 3	—	358 3 10
Total, A.—Conservancy and Works	1,239 7 10	8,738 0 6	18,874 0 9	1,172 8 1	8,290 3 9	1,448 12 9	2,241 6 9	42,004 8 5
B.—ESTABLISHMENTS.								
I.—Salaries—								
a. Conservators	8,200 0 0	—	—	—	—	—	—	8,200 0 0
b. Superior officers	1,250 0 0	3,000 0 0	1,228 11 0	—	4,783 5 0	4,661 4 6	—	14,923 4 6
c. Subordinate forest and depôt establishments	—	2,096 10 3	2,174 15 9	1,333 0 0	1,188 5 6	2,020 13 9	3,656 3 1	12,415 0 4
d. Office establishments	3,866 15 3	450 12 0	307 2 0	513 1 0	478 6 6	616 8 3	—	6,232 13 0
e. Deputation and special allowances	—	—	—	—	—	—	—	—
II.—Travelling allowances—								
a. Conservators	1,499 10 6	—	—	—	—	—	—	1,499 10 6
b. Superior officers	62 0 0	979 8 0	558 0 0	—	1,232 2 0	725 0 0	—	3,556 10 0
c. Subordinate forest and depôt establishments	—	2 0 0	—	—	3 12 0	34 10 0	—	40 6 0
d. Office establishments	20 4 0	—	—	—	—	—	—	20 4 0
III.—Contingencies—								
a. Stationery	2 8 0	0 3 6	—	2 8 0	1 0 0	—	—	6 3 6
b. Carriage of tents and records	27 8 0	5 14 0	7 6 3	3 0 0	102 9 3	—	—	146 5 6
c. Pay of police guards	—	—	—	—	—	—	—	—
d. Sundries	236 2 3	58 13 6	4 12 6	—	70 0 6	30 9 3	65 0 0	465 6 0
e. Official postage	259 5 6	24 0 6	25 0 0	15 4 0	41 7 0	44 3 0	—	409 4 6
Total, B.—Establishments	15,424 5 6	6,617 13 9	4,305 15 6	1,866 13 0	7,845 15 9	8,133 0 9	3,721 3 1	47,915 3 4
Grand Total of Expenditure	16,663 13 4	15,355 14 3	23,180 0 3	3,039 5 1	16,136 3 6	9,581 13 6	5,962 9 10	89,919 11 9

FORM No. 50.

FOREST DEPARTMENT, ASSAM.—ANNUAL ACCOUNT CURRENT FOR THE YEAR 1876-77.

DR. CR.

		Rs. A. P.	Rs. A. P.			Rs. A. P.	Rs. A. P.
To cash balance on the 1st April, 1876		1,428 8 2	1,428 8 2	By expenditure under "A."	Direction	1,239 7 10	
„ Revenue received in cash.	Direction	0 10 6			Gauhâti Division	8,738 0 6	
	Gauhâti Division	2,983 1 0			Tezpur „	18,874 0 9	
	Tezpur „	1,662 10 6			Golâghât „	1,172 8 1	
	Golâghât „	657 11 0			Goâlpâra „	8,290 3 9	
	Goâlpâra „	14,363 4 0			Cachar „	1,448 12 9	
	Cachar „	10,258 6 8			Civil Officers	2,241 6 9	42,004 8 5
	Civil Officers	42,346 1 5	72,271 13 1	„ Expenditure under "B."	Direction	18,424 5 6	
„ Revenue adjusted by book-transfer.	Public Works Department	5,665 11 11			Gauhâti Division	6,617 13 9	
	Police Department	1,040 0 0			Tezpur „	4,805 15 6	
	Jail Department	543 9 8			Golâghât „	1,866 13 0	
	Road Fund Committee	1,726 0 0			Goâlpâra „	7,845 15 9	
	Town Fund Committee	321 0 0	9,296 5 7		Cachar „	8,133 0 9	
					Civil Officers	3,721 3 1	47,915 3 4
„ Remittances from State Treasuries		88,556 7 7	88,556 7 7	„ Revenue remittances to State Treasuries.		72,245 4 7	72,245 4 7
„ Remittances by transfer from other departments.	Medical Department....	32 3 4	32 3 4	„ „ „ adjusted by book-transfer.....		9,296 5 7	9,296 5 7
				„ Advances recoverable.....		4,892 0 4	4,892 0 4
„ Contributions to Funds.	U. S. Family Pension Fund.....	480 8 0	480 8 0	„ Payment of permanent advance.....		880 0 0	880 0 0
„ Advances recoverable		5,351 0 4	5,351 0 4	„ Cash balance on the 31st March, 1877 ..		683 7 11	683 7 11
„ Recovery of permanent advances		500 0 0	500 0 0				
	Total....		1,77,916 14 2		Total....		1,77,916 14 2

FORM No. 51.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF OUTSTANDINGS AND LIABILITIES ON ACCOUNT OF CONTRACTORS AND DISBURSERS 1876-77.

Division.	Department Debtor.			Department Creditor.			Balance due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (outstandings).	By Department (liabilities).
Contractors.								
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	——	250 0 0	250 0 0	——	250 0 0	250 0 0	——	——
Gauhâti	——	412 0 0	412 0 0	——	412 0 0	412 0 0	——	——
Tezpur	0 0 3	56 4 0	56 4 3	56 4 0	——	56 4 0	——	0 0 3
Golâghât	——	210 6 10	210 6 10	332 0 9	44 8 4	426 9 1	216 12 3	0 10 0
Goâlpâra	——	1,106 11 0	1,106 11 0	273 11 0	885 0 0	1,156 11 0	50 0 0	——
Cachar	——	75 0 0	75 0 0	——	75 0 0	75 0 0	——	——
Disbursers.								
Gauhâti	——	196 11 9	196 11 9	21 0 0	182 8 0	203 8 0	6 12 3	——
Tezpur	——	766 0 3	766 0 3	266 0 3	500 0 0	766 0 3	——	——
Golaghât	——	66 0 0	66 0 0	66 0 6	10 0 0	76 0 6	10 0 6	——
Goâlpâra	——	2,211 14 6	2,211 14 6	144 4 0	2,535 0 0	2,679 4 0	467 5 6	——
Total.....	0 0 3	5,351 0 4	5,351 0 4	1,209 4 6	4,892 0 4	6,101 4 10	750 14 6	0 10 3

FORM No. 52.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF OUTSTANDINGS ON ACCOUNT OF REVENUE, 1876-77.

Division.	Particulars.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realized during year.	Balance due to the Department at end of year.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	Price of timber and other produce.....	——	7,755 10 6	7,755 10 6	7,755 10 6	——
Gauhâti	Ditto ditto ditto	——	2,983 1 0	2,983 1 0	2,983 1 0	——
Tezpur	Ditto ditto ditto	274 11 0	2,929 5 1	3,204 0 1	3,204 0 1	——
Golaghât	Ditto ditto ditto	410 0 0	247 11 0	657 11 0	657 11 0	——
Goâlpâra	Ditto ditto ditto	——	14,948 12 0	14,948 12 0	14,363 4 0	580 8 0
Cachar	Ditto ditto ditto	——	10,258 6 8	10,258 6 8	10,258 6 8	——
Civil Officers	Ditto ditto ditto	——	42,346 1 5	42,346 1 5	42,346 1 5	——
	Total.....	684 11 0	81,463 15 8	82,148 10 8	81,563 2 8	580 8 0

FORM No. 53.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF TREES FELLED DURING THE YEAR 1876-77.

Division.	Forest range.	Locality.	Description of trees.	On hand from previous year.		Felled during the current year.		Total.		Disposed of during current year.			Closing balance.	
				Number.	C. ft.	Number.	C. ft.	Number.	C. ft.	How disposed of.	Number.	C. ft.	Number.	C. ft.
Gauháti	Kulsi plantation	Pantan reserve	Sál	—	—	408	—	408	—	Cut into logs	178	—	230	—
Ditto	Ditto	Ditto	Ahay	—	—	1	—	1	—	Ditto	1	—	—	—
Ditto	Ditto	Ditto	Sam	—	—	2	—	2	—	Ditto	2	—	—	—
Ditto	Rani open forest	Pamohi Hill	Sál	—	—	300	—	300	—	Ditto	115	—	185	—
Tezpur	Balipará reserve	Balipara Sál forest	Sál	—	—	88	—	88	—	Ditto	88	—	—	—
Ditto	Ditto	Ditto	Ajhar	—	—	187	—	187	—	Ditto	187	—	—	—
Ditto	Ditto	Ditto	Gunserai	—	—	1	—	1	—	Ditto	1	—	—	—
Ditto	Ditto	Ditto	Poma	—	—	4	—	4	—	Ditto	4	—	—	—
Ditto	Nowduar reserve	Nowduar forest	Uriam	—	—	14	—	14	—	Ditto	14	—	—	—
Ditto	Ditto	Ditto	Bola	—	—	1	—	1	—	Ditto	1	—	—	—
Ditto	Ditto	Ditto	Ajhar	—	—	1	—	1	—	Ditto	1	—	—	—
Ditto	Charduar reserve	Charduar forest	Ajhar	—	—	14	—	14	—	Ditto	14	—	—	—
Ditto	Ditto	Ditto	Poma	—	—	2	—	2	—	Ditto	2	—	—	—
Ditto	Ditto	Ditto	Gomari	—	—	5	—	5	—	Ditto	5	—	—	—
Ditto	Ditto	Ditto	Khokon	—	—	9	—	9	—	Ditto	9	—	—	—
Ditto	Ditto	Ditto	Bola	—	—	2	—	2	—	Ditto	2	—	—	—
Ditto	Ditto	Ditto	Amari	—	—	4	—	4	—	Ditto	4	—	—	—
Ditto	Ditto	Ditto	Mukudima	—	—	1	—	1	—	Ditto	1	—	—	—
Ditto	Ditto	Ditto	Gunserai	—	—	2	—	2	—	Ditto	2	—	—	—
Golághát	Nambar reserve	Nambar forest	Nahor	—	—	93	—	93	—	.....	—	—	93	—
Ditto	Ditto	Ditto	Ajhar	—	—	107	—	107	—	.....	—	—	107	—
Goálpára	Ripu forest	Balatang	Sida	—	—	10	—	10	—	Cut into logs	10	—	—	—
Ditto	Sidli forest	Bhusangaon and Haltagaon	Sál	—	—	132	—	132	—	Ditto	132	—	—	—
Ditto	Ditto	Ditto	Ajhar	—	—	22	—	22	—	Ditto	22	—	—	—
Ditto	Ditto	Ditto	Gunserai	—	—	1	—	1	—	Ditto	1	—	—	—
Ditto	Ditto	Ditto	Barjamu	—	—	1	—	1	—	Ditto	1	—	—	—
			Total	—	—	1,412	—	1,412	—	.....	797	—	615	—

FORM No. 54.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF LOGS, SLEEPERS, AND OTHER SCANTLINGS CUT AND EXPORTED DURING THE YEAR 1876-77.

Division.	Forest range.	Locality.	Description of timber and scantlings.	On hand from previous year.		Cut during current year.		Total.		Disposed of during current year.			Closing balance.	
				No.	Cubic feet.	No.	Cubic feet.	No.	Cubic feet.	How disposed of.	No.	Cubic feet.	No.	Cubic feet.
							ft. in.		ft. in.			ft. in.		
Gauhâti	Kulsi	Pantan reserve	Sâl logs	393	—	356	—	749	—	Cut into scantlings	161	—	492	—
										Sent to depôt	76	1,873 3		
			„ scantlings	—	—	398	1,182 3	398	1,182 3	Ditto	398	1,182 3	—	—
			Sam sleepers	—	—	6	21 0	6	21 0	Ditto	6	21 0	—	—
			Ahay logs	—	—	6	48 0	6	48 0	Ditto	6	48 0	—	—
„	Rani	Pamohi Hill	Sâl logs	—	—	115	—	115	—	—	—	—	115	—
Tezpur	Balipara	Block A.	Ditto	157	—	172	—	329	—	Cut into scantlings	52	—	173	—
										Sent to depôt	104	1,501 10		
			Sâl logs (dead wood)	—	—	1,462	—	1,462	—	Ditto	303	1,067 1	1,159	—
			Ajhar logs	4	—	270	—	274	—	Ditto	20	267 6	—	—
										Cut into scantlings	254	—	—	—
			Gunserai logs	—	—	1	—	1	—	Ditto	1	—	—	—
			Poma „	2	—	6	—	8	—	Ditto	8	—	—	—
„	Nowdoar	Nowdoar	Uriam „	—	—	19	271 9	19	271 9	Sent to depôt	19	271 9	—	—
			Bola „	—	—	6	57 0	6	57 0	Ditto	6	57 0	—	—
			Ajhar „	—	—	2	—	2	—	Ditto	2	26 7	—	—
„	Chardoar	Rubber plantation	„ „	—	—	33	—	33	—	Cut into scantlings	33	—	—	—
			Poma logs	—	—	2	—	2	—	Ditto	2	—	—	—
„	Balipara	Block A.	Sâl scantlings	—	—	136	—	136	—	Used by the department	122	—	—	—
										Sent to depôt	14	65 4		
			Ajhar planks	—	—	1,166	2,332 0	1,166	2,332 0	Ditto	1,166	2,332 0	—	—
			„ beams	—	—	20	55 0	20	55 0	Ditto	20	55 0	—	—
			„ sleepers	—	—	5	17 4	5	17 4	Ditto	5	17 4	—	—
„	Chardoar	Rubber plantation	„ scantlings	—	—	179	457 0	179	457 0	Ditto	179	457 0	—	—
„	Balipara	Block A.	„ posts	—	—	33	—	33	—	Ditto	33	—	—	—
			Gunserai sleepers	—	—	5	17 4	5	17 4	Ditto	5	17 4	—	—
„	Chardoar	Rubber plantation	Poma planks	—	—	55	22 11	55	22 11	Ditto	55	22 11	—	—
			Gomari logs (2nd class)	—	—	5	—	5	—	Ditto	5	—	—	—
			Khokon logs „	—	—	9	—	9	—	Ditto	9	—	—	—
			Bola logs „	—	—	2	—	2	—	Ditto	2	—	—	—
			Amari logs „	—	—	4	—	4	—	Ditto	4	—	—	—
			Mukudima logs „	—	—	1	—	1	—	Ditto	1	—	—	—
			Gunserai logs „	—	—	2	—	2	—	Ditto	2	—	—	—
Golâghât	Nambar	Dhânsiri River	Nahor logs „	100	—	—	—	100	—	Ditto	87	—	13	—
			Ajhar logs	22	—	—	—	22	—	Ditto	20	469 7	2	—
			„ „ (2nd class)	46	—	—	—	46	—	Ditto	11	—	35	—
			Boats	2	—	—	—	2	—	Ditto	2	—	—	—
Goâlpâra	Ripu	Balatang	Sida logs	—	—	10	—	10	—	Cut into scantlings	10	—	—	—
„	Sidli	Bhusangaon and Haltagaon.	Sâl „	—	—	631	—	631	—	—	—	—	631	—
			Ajhar „	—	—	39	—	39	—	—	—	—	39	—
			Gunserai „	—	—	2	—	2	—	—	—	—	2	—
			Borjamu „	—	—	3	—	3	—	—	—	—	3	—
			Sida sleepers	—	—	28	97 2	28	97 2	Sent to depôt	28	97 2	—	—
			„ pieces	—	—	38	—	38	—	Ditto	38	—	—	—
		Total		726	—	5,227	—	5,953	—	—	3,289	—	2,664	—

FORM No. 55.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF TIMBER AND OTHER PRODUCE BROUGHT TO DEPOT FROM THE DIFFERENT FOREST DIVISIONS, 1876-77.

Division.	Forest.	Description of Timber, &c.	Number of		Total of each Division.	
			Pieces.	Cubic feet.	Pieces.	Cubic feet.
				ft. in.		ft. in.
Gauháti	Pantan	Sál logs	76	1,873 3		
Ditto	Ditto	„ scantlings	398	1,182 3		
Ditto	Ditto	Sam sleepers	6	21 0		
Ditto	Ditto	Ahay logs	6	48 0	486	3,124 6
Tezpur	Balipara	Sál logs	104	1,501 10		
Ditto	Ditto	„ „ (dead wood)	303	1,067 1		
Ditto	Ditto	„ beams	14	65 4		
Ditto	Ditto	Ajhar logs	22	204 1		
Ditto	Ditto	„ planks	1,166	2,332 8		
Ditto	Ditto	„ beams	20	55 0		
Ditto	Ditto	„ sleepers	5	17 4		
Ditto	Charduar	„ scantlings	179	457 0		
Ditto	Balipara	„ posts	33	—		
Ditto	Ditto	Uriam logs	19	271 9		
Ditto	Ditto	Bola logs	6	57 0		
Ditto	Ditto	Gunseral sleepers	5	17 4		
Ditto	Charduar	Poma planks	55	22 11		
Ditto	Ditto	Gomari logs (2nd class) ..	5	—		
Ditto	Ditto	Khokon „ „ ..	9	—		
Ditto	Ditto	Bola „ „ ..	2	—		
Ditto	Ditto	Amari „ „ ..	4	—		
Ditto	Ditto	Mukudima „ „ ..	1	—		
Ditto	Ditto	Gunseral „ „ ..	2	—	1,954	6,159 4
Golághát	Nambor	Ajhar logs	20	469 7		
Ditto	Ditto	Ditto (2nd class)	11	—		
Ditto	Ditto	Nahor logs ditto	87	—		
Ditto	Ditto	Boats	2	—	120	469 7
Goálpára	Ripu	Sida sleepers	23	97 2		
Ditto	Ditto	„ pieces	33	—	56	97 2
		TOTAL ..	2,626	9,850 7	2,626	9,850 7

FORM No. 56.

FOREST DEPARTMENT, ASSAM.—ACCOUNT OF TIMBER AND OTHER PRODUCE, 1876-77.

PARTICULARS.	PIECES.		TOTAL.	
	Number.	Cubic feet.	Number.	Cubic feet.
		ft. in.		ft. in.
Balance in hand at the commencement of the year—				
Gauhâti Division — Sâl logs .. — — —	331	7,656 2	331	7,656 2
Tezpur „ — Ditto (dead wood) — — —	3	26 0		
Ajhar scantlings — — —	34	31 3	37	57 3
Golághât „ — Ajhar logs — — —	18	499 0		
Nahor „ (second class) — — —	8	———		
Poma „ „ — —	16	———	42	499 0
Received during the year—				
Gauhâti Division — Sâl logs — — —	76	1,873 3		
„ scantlings — — —	308	1,182 3		
Sam sleepers — — —	6	21 0		
Ahay logs — — —	6	48 0	486	3,124 6
Tezpur Division — Sâl logs — — —	104	1,501 10		
Ditto (dead-wood) — — —	303	1,067 1		
Sâl beams — — —	14	65 4		
Ajhar logs — — —	22	294 1		
„ planks — — —	1,166	2,332 8		
„ beams — — —	20	55 0		
„ sleepers — — —	5	17 4		
„ scantlings — — —	179	457 0		
„ posts — — —	38	———		
Uriam logs — — —	19	271 9		
Bola „ — — —	6	57 0		
Gunserai sleepers — — —	5	17 4		
Poma planks — — —	55	22 11		
Gomari logs (second class) — —	5	———		
Khokon „ „ — —	9	———		
Bola „ „ — —	2	———		
Amari „ „ — —	4	———		
Mukudima logs „ — —	1	———		
Gunserai logs „ — —	2	———	1,954	6,159 4
Golághât „ — Ajhar logs — — —	20	469 7		
Ditto (second class) — —	11	———		
Nahor logs „ — —	87	———		
Boats — — —	2	———	120	469 7
Goálpára „ — Sida sleepers — — —	28	97 2		
„ pieces — — —	38	———	66	97 2
Total — —	3,036	18,063 0	3,036	18,063 0
Removed by purchasers—				
Gauhâti Division — Sâl logs — — —	10	268 0	10	268 0
Ditto — — —	70	1,107 7		
Ditto (dead wood) — —	111	529 1		
Sâl beams — — —	10	46 8		
Ajhar logs — — —	20	267 6		
„ planks — — —	222	444 0		
„ beams — — —	20	55 0		
„ scantlings — — —	77	134 0		
Tezpur „ — „ posts — — —	33	———		
Uriam logs — — —	19	271 9		
Gomari logs (second class) — —	5	———		
Khokon „ „ — —	9	———		
Bola „ „ — —	2	———		
Amari „ „ — —	4	———		
Mukudima logs „ — —	1	———		
Gunserai „ „ — —	2	———	605	2,855 7
Golághât „ — Boats — — —	2	———	2	
Goálpára „ — Sida pieces — — —	38	———	38	
Lost or used by the department—				
Gauhâti Division — Sâl logs — — —	120	3,138 6		
„ scantlings — — —	108	299 9	228	3,438 3
Tezpur „ — Sâl logs — — —	5	9 4		
Ditto (dead-wood) — —	18	15 5		
Sâl beams — — —	4	18 8		
Ajhar logs — — —	1	12 7		
„ scantlings — — —	125	344 6		
Poma planks — — —	18	7 6	171	408 0
Balance in hand at the close of the year—				
Gauhâti Division — Sâl logs — — —	277	6,122 11		
„ scantlings — — —	290	882 6		
Sam sleepers — — —	6	21 0		
Ahay logs — — —	6	48 0	579	7,074 5
Tezpur „ — Sâl logs — — —	29	384 11		
Ditto (dead wood) — —	177	548 7		
Ajhar logs — — —	1	14 0		
„ planks — — —	944	1,888 0		
„ sleepers — — —	5	17 4		
Gunserai sleepers — — —	5	17 4		
Ajhar scantlings — — —	11	10 5		
Bola logs — — —	6	57 0		
Poma planks — — —	37	15 5	1,215	2,933 0
Golághât „ — Ajhar logs — — —	38	968 7		
Ditto (second class) — —	11	———		
Nahor logs „ — —	95	———		
Poma „ „ — —	16	———	160	968 7
Goalpára „ — Sida sleepers — — —	28	97 2	28	97 2
Total — —	3,036	18,063 0	3,036	18,063 0

FORM No. 57.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE AMOUNT REALIZED ON ACCOUNT OF THE DIFFERENT CLASSES OF TIMBER AND OTHER PRODUCE SOLD DURING 1876-77.

Division.	Description of timber, &c.	Number of pieces, &c., sold.	Cubic contents.	Amount realized and due on account of sales.	Average amount per log, &c.	Average cubical contents of logs.	Average amount per cubic foot.
			ft. in.	Rs. As. P.	Rs. As. P.	ft. in.	Rs. As. P.
Gauhátí ..	Sál logs	10	268 0	268 0 0	26 12 9	26 9	1 0 0
Tezpur	„	70	1,107 7	1,107 9 2	15 13 1	15 9	1 0 0
Ditto	„ (dead wood) ..	111	529 1	529 1 8	4 12 3	4 9	1 0 0
Ditto	„ beams	10	46 8	70 0 0	7 0 0	4 8	1 8 0
Ditto	Ajhar logs	20	267 6	200 10 0	10 0 6	13 4	0 12 0
Ditto	„ planks	195	390 0	390 0 0	2 0 0	2 0	1 0 0
Ditto	„ „	27	54 0	81 0 0	3 0 0	2 0	1 8 0
Ditto	„ beams	20	55 0	55 0 0	2 12 0	2 9	1 0 0
Ditto	„ scantlings ..	19	17 4	27 1 3	1 6 9	0 10	1 9 0
Ditto	„ ditto ..	58	116 8	175 0 0	3 0 3	2 0	1 8 0
Ditto	„ posts	88	.....	4 2 0	0 2 0	.....	.....
Ditto	Uriam logs	19	271 9	203 13 0	10 11 7	14 3	0 12 0
Ditto	Gomari logs (2nd class) ..	5	.....	15 0 0	3 0 0	.....	.....
Ditto	Khokon „ „ „ ..	9	.....	18 0 0	2 0 0	.....	.....
Ditto	Bola „ „ „ ..	2	.....	6 0 0	3 0 0	.....	.....
Ditto	Amari „ „ „ ..	4	.....	12 0 0	3 0 0	.....	.....
Ditto	Mukudima „ „ „ ..	1	.....	3 0 0	3 0 0	.....	.....
Ditto	Gunserai „ „ „ ..	2	.....	6 0 0	3 0 0	.....	.....
Golághát ..	Boats	2	.....	100 0 0	50 0 0	.....	.....
Goálpára ..	Sida pieces	38	.....	11 12 0	0 4 7	.....	.....
Total ..	.....	655	3,123 7	3,283 1 1	5 0 2	4 9	1 0 9
DEDUCT— Amount due, but not realized during the year				.....			
ADD— „ Amount realized on account of former years				684 11 0			
Total shown as revenue on account of sales under Budget Head I.....				3,967 12 1			

FORM No. 58.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE AMOUNT EXPENDED ON THE DIFFERENT CLASSES OF TIMBER AND OTHER PRODUCE BROUGHT TO DEPOT DURING 1876-77.

Division or Depôt.	Particulars of timber, &c.	Number of		Expenditure.			Average.		
		Pieces.	Cubic contents.	Timber expenses under A I.	Quota of all other expenditure chargeable against timber, &c.	Total amount chargeable against timber, &c.	Amount per piece.	Cubic contents per piece.	Amount per cubic foot.
			ft. in.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	ft. in.	Rs. As. P.
Gauhati Division	Sál logs	76	1,873 3	749 13 9	5,322 2 1	6,071 15 10	12 7 10	6 5	1 15 1
	„ scantlings	298	1,182 3						
	Sam sleepers	6	21 0						
	Ahay logs	6	48 0						
Tezpur Division	Sál logs	104	1,501 10						
	Ditto (dead wood)	303	1,067 1						
	Sál beams	14	65 4						
	Ajhar logs	22	294 1						
	„ planks	1,166	2,332 8						
	„ beams	20	55 0						
	„ sleepers	5	17 4						
	„ scantlings	179	457 0						
	„ posts	33	——						
	Uriam logs	19	271 9	2,562 4 3	6,567 7 4	9,129 11 7	4 10 9	3 1	1 7 3
	Bola logs	6	57 0						
	Gunserai sleepers	5	17 4						
	Poma planks	55	22 11						
	Gomari logs (2nd class)	5	——						
	Khokon „ „	9	——						
	Bola „ „	2	——						
	Amari „ „	4	——						
	Mukudima logs „	1	——						
	Gunserai logs „	2	——						
Golághat Division	Ajhar logs	20	469 7	208 2 0	1,152 12 2	1,360 14 2	68 3 5	3 10	2 14 4
	Ditto (2nd class)	11	——						
	Nahor logs	87	——						
	Boats	2	——						
Goalpára Division	Sida sleepers	28	97 2	166 13 6	——	166 13 6	5 5 5	1	1 12 6
	Ditto pieces	38	——						
	Total	2,626	9,860 7	3,687 1 6	13,042 5 7	16,729 7 1	6 5 11	3 9	1 11 2

Quota of all other expenditure entered in column 5 comprise half the charges under "A VI." and "B.—Establishments" for each division.

FORM No. 59.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE REVENUE DERIVED FROM, AND EXPENDITURE INCURRED ON, TIMBER AND OTHER PRODUCE SOLD TO PUBLIC DEPARTMENTS, FROM DEPOT DURING THE YEAR 1876-77.

Name of Department.	Particulars of supplies.	Amount supplied.	Rate. At	Rate. Per	Amount of Revenue. Due.	Received.	Outstanding.	Cost to Forest Department. Timber expenses under A I.	Quota of all other expenditure chargeable against timber, &c.	Total.	Comparison of Revenue and Expenditure. Surplus.	Deficit.	Remarks.
		ft. in.	Rs.		Rs. As. P.	Rs. As. P.		Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.		
Public Works Department.	58 Sál logs	997 9	1	Cubic foot.	997 11 11	997 11 11	..	150 11 10	386 5 10	537 1 8	460 10 3	..	Quota of all other expenditure entered in column 10, comprise half the charges under "A VI." and "B.—Establishments."
Jail Department.	10 „ 12 „ (dead wood)	139 2	1	„	139 2 8	139 2 8	..	20 15 11	53 13 0	74 12 11	64 5 9	..	
	19 Uriam logs 20 Ajhar „	539 8	0-12	„	404 7 0	404 7 0	..	82 7 3	211 5 5	293 12 8	110 10 4	..	
Total ..	....	..	..	..	1,541 5 7	1,541 5 7	..	254 3 0	651 8 3	905 11 3	635 10 4	..	
									Deduct deficit....		....	..	
									Balance for Department....		635 10 4	..	

FORM No. 60.

FOREST DEPARTMENT, ASSAM.—ABSTRACT SHOWING THE VALUE OF TIMBER AND OF LIVE AND DEAD STOCK FOR THE YEAR 1876-77.

Description of timber and other stock.	On hand at commencement of the year. No.	Value.	Received during the year. No.	Value.	Total. No.	Value.	Sold, otherwise disposed of, and lost during the year, and allowance for depreciation. No.	Value.	On hand at close of the year. No.	Value.
		Rs. As. P.		Rs. As. P.		Rs. As. P.		Rs. As. P.		Rs. As. P.
Direction—										
Instruments and ordinance stores	..	.....	3	115 12 0	3	115 12 0	..	.....	3	115 12 0
Office furniture	..	.....	..	625 0 0	..	625 0 0	..	.....	..	625 0 0
Live stock—										
Elephants	..	.....	2	4,000 0 0	2	4,000 0 0	..	.....	2	4,000 0 0
Buildings—										
Small houses	..	.....	2	140 0 0	2	140 0 0	..	.....	2	140 0 0
Gauhâti Division—										
Timber at depôt	331	5,000 0 0	486	3,880 0 0	817	8,880 0 0	238	4,080 0 0	579	4,800 0 0
Instruments and ordinance stores	6	40 0 0	4	73 8 0	10	113 8 0	..	.....	10	113 8 0
Furniture and camp equipage	..	789 0 0	..	607 0 0	..	1,436 0 0	..	431 0 0	..	1,005 0 0
Live stock—										
Elephants	5	6,000 0 0	2	4,000 0 0	7	10,000 0 0	..	.....	7	10,000 0 0
Tools and plant	..	409 0 0	..	214 0 0	..	623 0 0	..	163 0 0	..	460 0 0
Buildings—										
Kulsi plantation bungalow	1	4,000 0 0	..	.....	1	4,000 0 0	..	.....	1	4,000 0 0
Other houses	4	80 0 0	12	200 0 0	16	321 0 0	1	21 0 0	15	300 0 0
Tezpur division—										
Timber at depôts	87	74 13 2	1,954	7,010 8 9	1,991	7,085 6 0	776	3,210 4 2	1,215	3,875 1 10
Instruments and ordinance stores	4	36 0 0	2	147 0 0	6	183 0 0	..	.....	6	183 0 0
Furniture and camp equipage	..	1,058 0 0	..	309 0 0	..	1,367 9 0	..	749 9 0	..	618 0 0
Live stock—										
Elephants	2	4,000 0 0	1	2,000 0 0	3	6,000 0 0	..	.....	3	6,000 0 0
Buffaloes	8	320 0 0	..	.....	8	320 0 0	1	32 0 0	7	288 0 0
Tools and plant	..	330 7 0	..	325 5 0	..	655 12 0	..	1 0 0	..	824 12 0
Buildings—										
Bhairabighat bungalow and inspection-house.	..	.....	2	4,200 0 0	2	4,200 0 0	..	.....	2	4,200 0 0
Other houses	..	.....	22	353 0 0	22	353 0 0	..	.....	22	353 0 0
Golâghât division—										
Timber at depôt	42	494 4 0	120	1,028 3 9	162	1,522 7 9	2	100 0 0	160	1,422 7 9
Instruments and ordinance stores	7	66 0 0	1	100 0 0	8	166 0 0	..	.....	8	166 0 0
Furniture and camp equipage	..	266 8 0	..	13 8 0	..	280 0 0	..	.....	..	280 0 0
Live stock—										
Elephants	1	2,000 0 0	..	.....	1	2,000 0 0	..	.....	1	2,000 0 0
Tools and plant	..	594 8 0	..	.....	..	594 8 0	..	161 0 0	..	433 8 0
Buildings—										
Inspection-house	..	.....	4	800 0 0	4	800 0 0	..	.....	4	800 0 0
Other houses	..	.....	4	100 0 0	4	100 0 0	..	.....	4	100 0 0
Goâlpâra division—										
Timber at depôt	..	.....	66	131 0 0	66	131 0 0	38	11 0 0	28	120 0 0
Instruments and ordinance stores	15	165 0 0	2	237 0 0	17	402 0 0	..	.....	17	402 0 0
Furniture and camp equipage	..	707 8 0	..	382 0 0	..	1,089 8 0	..	.....	..	1,089 8 0
Live stock—										
Elephants	1	2,000 0 0	1	2,000 0 0	2	4,000 0 0	..	.....	2	4,000 0 0
Tools and plant	..	49 8 0	..	135 15 0	..	185 7 0	..	.....	..	185 7 0
Buildings—										
Bhairabi bungalow and inspection-houses	..	.....	5	4,520 0 0	5	4,520 0 0	..	.....	5	4,520 0 0
Other houses	..	.....	10	150 0 0	10	150 0 0	..	.....	10	150 0 0
Cachar division—										
Instruments and ordnance stores	1	14 0 0	6	149 0 0	7	163 0 0	..	.....	7	163 0 0
Furniture and camp equipage	..	51 0 0	..	247 4 9	..	298 4 9	..	.....	..	298 4 9
Live stock—										
Elephants	1	2,000 0 0	..	.....	1	2,000 0 0	..	.....	1	2,000 0 0
Tools and plant	..	4 0 0	..	65 6 0	..	69 6 0	..	.....	..	69 6 0
Buildings—										
Small houses	..	.....	3	104 4 0	3	104 4 0	1	30 0 0	2	74 4 0
Total	..	30,630 1 8	..	38,545 11 3	..	69,175 12 6	..	8,989 13 2	..	60,185 15 4

NOTE.—Difference in value at commencement and close of the year, Rs. 29,413-14-1.

GUSTAV MANN,
Deputy-Conservator of Forests, Assam.

APPENDIX I.

Register of Reserved Forests in the Province of Assam, added during 1876-77.

TEZPUR FOREST DIVISION.

Darrang District.

VI. The Nowduar Reserve.—Notified in the *Assam Gazette* of the 9th September, 1876, page 488, situated immediately at the foot of the Akha Hills, on the left bank of the Bhairabi (Bhoroli) River, and between the latter and the Bar-Dikrai River.

(1.) *Area.*—Eighty-two square miles, or 52,480 acres.

(2.) *Boundaries.*—North.—The line fixed by the British Boundary Commissioners between the Akha Hills and British territory, from the Bhairabi River to the Bar-Dikrai River.

East and South.—The Bar-Dikrai River, from its exit from the Akha Hills to its junction with the Bhairabi River.

West.—The Bhairabi River, from its junction with the Bar-Dikrai River to its exit from the Akha Hills.

(3.) *Soil.*—Alluvial in the greater part of the reserve, with deep vegetable mould on the surface; in the centre, between the Upar-Dikrai and Bar-Dikrai Rivers, low hills chiefly consisting of sandstone.

(4.) *Description of the Forest.*—Very dense lower hill forest over the greater portion of the reserve, in which the Caoutchouc-tree (*Ficus elastica*) prevails. In the southern part, on the banks of the Bhairabi and Bar-Dikrai Rivers, the forest is inferior, and abandoned jhúms exist.

(5.) *Timber depôts.*—At the Bhairabi ghat and Tezpur.

(6.) *Timber markets.*—For local requirements the above two depôts; for export, the Dhubri timber depôt, in the Goálpára district.

(7.) *Lines of export.*—The Bhairabi and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—The Miri villages of Rungajangaon and Dikraigaon. The land on which they are allowed to carry on permanent cultivation has been marked off. The Miris are a migratory race who never remain permanently in one spot, and when the present site is abandoned, they will not be allowed to take up other lands within the reserve. An area of 36 puras of land was claimed by the Akha chief Midhi in this reserve, but he has now selected land outside in preference.

(9.) *Rights of surrounding population.*—The Akhas also claim the privileges of fishing and grazing their cattle in the reserve: the area over which these privileges are to extend has not yet been defined.

(10.) *Maps.*—A map on the scale of one inch to one mile is filed in the offices of the Deputy-Commissioner of Darrang, the Deputy-Conservator of Forests, Assam, and the Tezpur forest division.

(11.) *Working plan.*—Protection against jhúming and other cultivation, as well as against illicit removal of forest produce, are the measures carried out at present. The detailed examination will be undertaken as soon as the more pressing works started in other reserves will permit. The growing material in the forest is in excess of the present requirements.

CACHAR FOREST DIVISION.

Cachar District.

I. The Upper Jiri Reserve.—Notified in the *Assam Gazette* of the 17th March, 1877, page 67, situated on the right bank of the Jiri River, and between this and the Digli River.

(1.) *Area.*—Twenty-four square miles.

(2.) *Boundaries.*—West—The Digli River, from its junction with the Jiri River, in the south, to the boundary of the Digli grant; thence the south-eastern boundary of this grant to its north-eastern corner, on the Digli River, thence again up the Digli River to the northern limit of the Revenue Survey of 1864-68.

North.—The northern limit of the Revenue Survey of 1864-68 between the Digli and the Jiri Rivers.

East and South.—The Jiri River, from northern boundary of this reserve to its junction with the Digli River.

(3.) *Soil.*—Low hills and undulating high ground. Sandy loam resting on sandstone rock, vegetable mould on the surface.

(4.) *Description of the forest.*—Entirely lower hill forest, in which timber felling has been carried on excessively in former years; abandoned jhúms, with inferior forest on them, exist along the Jiri River.

(5.) *Timber depôts.*—None at present.

(6.) *Timber markets.*—The Cachar, Sylhet, and some of the Eastern Bengal districts.

(7.) *Lines of export.*—The Jiri, Barák, and Surmá Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—The Bahadurpur grant (No. 384 of 1874-75), area 624 acres.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the offices of the Deputy-Commissioner of Cachar, the Deputy-Conservator of Forests, Assam, and that of the Cachar forest division.

(11.) *Working plan.*—The detailed examination of this reserve will be commenced as soon as all the demarcation work in the Cachar forest division is completed. For the present, protection against jhúming or other cultivation, and illicit removal of forest produce, is all that can be attempted.

II. The Lower Jiri Reserve.—Notified in the *Assam Gazette* of the 17th March, 1877, page 67, situated at the junction of the Jiri and Barák Rivers, and between the former and the Ramphan range of hills.

(1.) *Area.*—Fourteen square miles.

(2.) *Boundaries.*—West.—A line running from the north-western corner of the Alni grant (No. 201), on the Barák River, to the foot of the Ramphan range, as marked on the Revenue Survey map of 1864-68; thence along the ridge of this range to the crossing of the Manipur Road.

North.—The Manipur Road, from the ridge of the Ramphan range to north-western corner of the Jiri grant (No. 31).

East.—The south-western boundary of the Jirighat grant from the Manipur Road to the Jiri River, thence down the Jiri River to its junction with the Barák River.

South.—The Barák River from its junction with the Jiri River to the south-eastern corner of the Alni grant (No. 201), thence the northern boundary of this grant to its north-western corner on the Barák River.

(3.) *Soil.*—Sandy loam on sandstone rock. The Ramphan range reaches a height of 679 feet; all the rest of the reserve consists of low undulating hills.

(4.) *Description of the forest.*—Exclusively lower hill forest; a great part is inferior at present, on account of extensive jhúming carried on in former times.

(5.) *Timber depôts.*—None at present.

(6.) *Timber markets.*—The Cachar, Sylhet, and some of the Eastern Bengal districts.

(7.) *Lines of export.*—The Jiri, Barák, and Surmá Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—(*a*) Kuki villages, 3; (*b*) Nága villages, 3; two of the latter have no cultivation within the reserve.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the offices of the Deputy-Commissioner of Cachar, the Deputy-Conservator of Forests, Assam, and that of the Cachar forest division.

(11.) *Working plan.*—Protection against jhúming or other cultivation, and the illicit removal of forest produce, is all that can be attempted until the more substantial demarcation of the settled lands adjoining and included in the other reserves is completed.

III. The Barák Reserve.—Notified in the *Assam Gazette* of the 17th of March, 1877, page 67, situated on the left bank of the Barák River.

(1.) *Area.*—Sixty-seven square miles.

(2.) *Boundaries.*—West.—The Sonai River, from the crossing of the Inner Line, in the south, to its junction with the Bhubun khal; thence up the Bhubun khal to its source on the Bhunbun range; thence along the ridge of the Bhubun range in a northerly direction to the junction of the Chinjoor River with a tributary stream, as marked on the Revenue Survey map of 1864-68; thence down the Chinjoor River to the foot of the Bhubun range, situated north of the Chinjoor River; thence along the ridge of that range to the south-eastern corner of the Dilkush grant (No. 146), on the Barák River.

North and East.—The Barák River, from the south-eastern corner of the Dilkush grant (No. 146) to the north-eastern corner of the Bhubundhur grant; thence the northern and western boundaries of this grant, the western boundary of the Doobhudhur grant (No. 255), and the western and southern boundary of the Mainadhar grant (No. 260), to the south-eastern corner of the latter grant, on the Barák River; thence the Barák River to the Inner Line.

South.—The Inner Line, from the Barák River in the east, to the Sonai River in the west.

(3.) *Soil.*—The greater part of the Bhubun range, being chiefly sandstone and rising to a height of 2,514 feet, is included in this reserve; all the rest consists of low hills and undulating high ground, where the soil is principally sandy loam; only small portions are alluvial.

(4.) *Description of forest.*—Entirely lower hill forest, the eastern part of which at short distances from the Barák River has been worked excessively in former times by wood-cutters.

(5.) *Timber depôts.*—None at present.

(6.) *Timber markets.*—The Cachar, Sylhet, and some of the Eastern Bengal districts.

(7.) *Lines of export.*—The Barák and Surmá rivers.

(8.) *List of villages or private lands remaining within the forest boundaries:*—

(*a.*) Part of the Mankush grant, the exact area of which has not yet been ascertained.

(*b.*) The Naraindhur grant (No. 124 of 1875-76), area, 515 acres.

(*c.*) The Bhubun Khall grant (No. 80 of 1875-76), area 1,110 acres.

(*d.*) Kuki villages, 3.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the offices of the Deputy-Commissioner of Cachar, the Deputy-Conservator of Forests, Assam, and that of the Cachar Forest division.

(11.) *Working plan.*—The better demarcation of the boundaries of that portion of the Mankush grant which is included in the reserve will first be attended to ; after this, the demarcation of the adjoining grants. When this is completed in all the reserves, the detailed examination will be carried out. Meanwhile, strict protection against jhúming or other cultivation will be attended to.

IV. The Sonai Reserve.—Notified in the *Assam Gazette* of the 17th March, 1877, page 67, situated between the Sonai and Rukmini Rivers north of the Inner Line.

(1.) *Area.*—Eighteen square miles.

(2.) *Boundaries.*—West.—The Rukmini River, from the crossing of the Inner Line to its junction with the Sonai River.

North and East.—The Sonai River, from its junction with the Rukmini river to the north-western corner of the Dhurmee Khal grant (No. 186) ; thence the western boundary of this grant, and the northern and western boundary of the Monierkhal grant, until it meets the Inner Line.

South.—The Inner Line, from the Monierkhal grant in the east, to the Rukmini River in the west.

(3.) *Soil.*—The greater part of the reserve has alluvial soil, and the land towards the west, and especially in the neighbourhood of the Punia Beel, is low. Some parts towards the Sonai River are high land, with loamy soil.

(4.) *Description of the forests.*—The southern and western part is chiefly mixed plain forest, largely intercepted with grass land, whilst the northern and eastern part is lower hill forest.

(5.) *Timber depôt.*—None at present.

(6.) *Timber markets.*—A considerable amount of timber trade is done at Sonaimukh, the junction of the Sonai and Barák Rivers, besides which the rest of the Cachar, Sylhet, and some of the eastern districts of Bengal, get supplied.

(7.) *Lines of export.*—The Sonai, Rukmini, Barák, and Surmá Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—The Rukmini grant No. 173 (Merashdari), area 6,080 acres.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the offices of the Deputy-Commissioner of Cachar, the Deputy-Conservator of Forests, Assam, and that of the Cachar forest division.

(11.) *Working plan.*—The demarcation of the Rukmini grant will first be taken in hand, and the reserve be strictly protected against jhúming or other cultivation, and the illicit removal of forest produce. The detailed examination will be carried out after this work in the Barák reserve has been done.

V. The Katakhal Reserve.—Notified in the *Assam Gazette* of the 17th March, 1877, page 67, situated east of the Katakhal, and between this river and the Rengti Pahar range.

(1.) *Area.*—Eighty square miles.

(2.) *Boundaries.*—West and North.—The ridge of the Boorun range from the Boorunchurra Tea Company's land in a northerly direction to the southern boundary of the Rupacherra grant, as marked on the Revenue Survey map of 1864-68 ; thence the southern boundary of the Rupacherra grant from the Boorun range, in the west, to the eastern boundary of that grant; thence along the eastern and northern boundaries of that grant to the Katakhal; then this river, from the north-western corner of the Rupacherra grant to the south-western corner of the Hasioorah grant (No. 125); thence the southern and eastern boundaries of the latter grant to the southern boundary of the Jafferbund or Goglacherra grant (No. 61); thence along this boundary and the southern boundary of the Sonarbund grant (No. 175) and the southern boundary of the Loharbund grant (No. 130), until the point where the latter meets the Jalinga Nadi; thence up the Jalinga Nadi to the point where it meets the Inner Line.

East.—The Inner Line from the point on the Jalinga Nadi, in the north, to the north-eastern corner of the Boorruncherra grant.

South.—The northern boundaries of the Boorruncherra Tea Company's land, from the Inner Line in the east, to the Boorun range in the west.

(3.) *Soil.*—Undulating high ground intersected with swamps. The Boorun range rises to a height of 457 feet, consisting of shale and sandstone. Lime is also found in the southern part of this range. Sandy loam is the predominant soil.

(4.) *Description of the forest.*—Exclusively lower hill forest; less worked than other tracts, on account of the difficulty of getting the timber to the Katakhal.

(5.) *Timber depôt.*—None at present.

(6.) *Timber markets.*—Cachar, Sylhet, and some of the Eastern Bengal districts.

(7.) *Lines of export.*—The Katakhal, Dhaleswari, Barák, and Surmá rivers.

(8.) *List of villages or private lands remaining within the forest boundaries:*—

(*a.*) Portion of settled land No. 334 of 1874-75, the exact area of which has not yet been ascertained.

(*b.*) The settled land No. 114 of 1872-73, exact area not yet ascertained.

(*c.*) The settled land No. 338 of 1874-75, area 47 acres.

(*d.*) The settled land No. 24 of 1870-71, area 155 acres.

(*e.*) The settled land No. 106 of 1871-72 :—

Pottah No. 1, area 297 acres.
" 2, " 853 "
" 3, " 299 "
" 4, " 303 "
" 5, " 120 "

(*f.*) The settled land No. 302 of 1874-75 :—

Pottah No. 6, area 521 acres.
" 7, " 265 "

(*g.*) The settled land No. 135 of 1872-73, area 1,434 acres.

(*h.*) The settled land No. 190 of 1875-76, area 706 acres.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the offices of the Deputy-Commissioner of Cachar and the Deputy-Conservator of Forests, Assam, and that of the Cachar forest division.

Working plan.—In this reserve, the better demarcation of the included and adjoining private lands will be carried out first, before anything else is attempted. Meanwhile, protection against jhúming and other cultivation, and the illicit removal of forest produce from this reserve, is all that can be done for the present.

VI.—The Dhaleswari Reserve.—Notified in the *Assam Gazette* of the 17th March, 1877, page 67, situated west of the Dhaleswari River, and between the latter and the Sylhet boundary.

(1.) *Area.*—Thirty-three square miles.

(2.) *Boundaries.*—West.—The boundary of the Sylhet district, from the western end of the Cachar Inner Line to Rupatang guard.

North.—The road leading from the Rupatang guard to the western boundary of the Alexandrapore grant.

East.—The western boundary of the Alexandrapore grant, from the point where the road coming from the Rupatang guard crosses it, to the north-western corner of the Cutlicherra grant; thence the western and southern boundaries of the latter grant to the south-eastern corner of that grant, on the Dhaleswari River; thence up this river to the crossing of the Inner Line.

South.—The Inner Line from the Dhaleswari River in the east, to the Sylhet boundary in the west.

(3.) *Soil.*—Almost exclusively hills, which in the neighbourhood of the Dhaleswari are low and undulating, whilst towards the west, the Chátáchura range rises at the Alexandrapore Peak to 925 feet. The soil on the hills is sandy loam, resting on shale and sandstone. A large swamp exists between the Chátáchura and Bhundu ranges.

(4.) *Description of the Forest.*—Entirely lower hill forest, except in the swamps, which latter are almost completely open and covered with grass only.

(5.) *Timber depôts.*—None at present.

(6.) *Timber markets.*—Cachar, Sylhet, and some of the Eastern Bengal districts.

(7.) *Lines of export.*—The Dhaleswari, Katakhal, Barák, and Surmá Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—The settled land No. 154, of 1874-75, area 1,401 acres.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one inch to the mile is filed in the offices of the Deputy-Commissioner of Cachar, the Deputy-Conservator of Forests, Assam, and that of the Cachar forest division.

(11.) *Working plan.*—Protection againt jhúming is here the most important work. There are Kuki villages, with extensive cultivation, on the Sylhet side of the Chátáchura range, who have to be watched closely that they do not trespass in this reserve. The better demarcation of the Cutlicherra grant has already been commenced, and must be completed.

VII.—The Inner Line Reserve.—Notified in the *Assam Gazette* of the 17th March, 1877, page 67, situated between the Inner Line and the Lushai country, and extending from Manipur in the east to Sylhet in the west.

(1.) *Area.*—509 square miles.

(2.) *Boundaries.*—West.—The boundary between Sylhet and Cachar, from the Lushai boundary in the south to the Inner Line in the north.

North.—The Inner Line, from the Sylhet boundary in the west, to the Barák River in the east, as defined in the Government of India Notification No. 2,299P., dated the 20th August, 1875, published in the *Assam Gazette* of the 11th September, 1875, page 497.

East.—The Barák River, from the Inner Line in the north, to the Lushai boundary in the south.

South.—The Lushai boundary, from the Barák River in the east, to the Sylhet boundary in the west.

(3.) *Soil.*—The different ranges of hills crossing this reserve are chiefly running north and south, and consist of shale and sandstone, with a sandy loam on the surface; the ground between the ranges is also high undulating or low hills, with occasional swamps intervening.

(4.) *Description of Forest.*—Exclusively lower hill forest, in which the Caoutchouc-tree (*Ficus elastica*) prevails. This forest has not been heavily worked, and jhúms do not exist. It contains the better kinds of timber in greater quantity near the rivers than the forests in the other reserves, and on this account is resorted to by some of the timber-cutters in preference to the other forest.

(5.) *Timber depôts.*—None.

(6.) *Timber markets.*—The Cachar, Sylhet, and some of the Eastern Bengal districts.

(7.) *Lines of export.*—The Dhaleswari, Rukmini, Sonai, Barák, and Surmá Rivers.

(8.) *List of Villages or private lands remaining within the forest boundaries.*—The proprietors of the Jhalnachurra Tea plantation on the right bank of the Dhaleswari River have had 500 acres granted them on the left bank of this river, within the reserve, by the Chief Commissioner, as this locality is supposed to be healthier. The land has not yet been surveyed.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one mile to the inch is filed in the offices of the Deputy-Commissioner of Cachar, the Deputy-Conservator of Forests, Assam, and that of the Cachar forest division.

(11.) *Working plan.*—Nothing but protection against jhúming and other cultivation, and the illicit removal of forest produce, is contemplated at present.

OFFICE OF DIRECTION.

Khási and Jaintiá Hills District.

I. The Saipung Reserve.—Notified in the *Assam Gazette* of the 29th July, 1876, page 435, situated on the southern slopes of the Saipung and Thangmasi range.

(1.) *Area.*—50 square miles.

(2.) *Boundaries.*—North.—Thangmasi.
South.—Ka Wah Khyndrim.
East.—Bari Hills.
West.—Ka Wah khyndrim and the Syah and Pangkla woods.

(3.) *Soil.*—A ferruginous loam, with rich vegetable mould on the surface.

(4.) *Description of forest.*—Entirely lower hill forest.

(5.) *Timber depôts.*—None.

(6.) *Timber markets.*—This forest was declared a reserve, with a view of securing a permanent supply of timber for local requirements only. From its position it is not likely, as far as can be judged at present, that timber will ever be exported from it.

(7.) *Lines of export.*—No export of timber is practicable under present circumstances.

(8.) *List of villages or private lands remaining within the forest boundaries.*—None.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of two miles to the inch has been filed in the office of the Deputy-Commissioner of the Khási and Jaintiá Hills, and that of the Deputy-Conservator of Forests, Assam.

(11.) *Working plans.*—Nothing beyond protection against jhúming or any other cultivation, and against illicit felling and removal of timber, can be attempted at present.

APPENDIX II.

Forest Rules published in the Assam Gazette of 16th September, 1876, page 502.

THE following Rules, having been made by the Chief Commissioner of Assam, under Act VII. of 1865, and confirmed by the Governor-General in Council, are hereby published under Section 6 of the said Act:—

Rules for the Management and Preservation of Government Forests in the Chief Commissionership of Assam.

PART I.

Preliminary.

These Rules shall be in force in those tracts of land in the Chief Commissionership of Assam which may be declared to be Government forests under Act VII. of 1865, and they shall regulate the transit of timber, and other matters referred to in Section 4 of the Act, in those districts to which they may be extended by an order of the Chief Commissioner of Assam, published in the *Assam Gazette*.

2. On any tract being declared, by notification under Section 2, Act VII. of 1865, to be subject to the provisions of that Act, it shall be under the control of the chief Forest officer in the Province, or of such other officer as the Chief Commissioner may appoint in this behalf, subject to the general supervision of such chief Forest officer.

3. Divisions and sections of Government forests shall be placed under the management of Forest officers, or of such other officers as the Chief Commissioner may appoint to manage them, under the direction of the chief Forest officer.

4. The Government forests, as notified under Section 2, Act VII. of 1865, shall be marked on copies of such maps, and the entries thus made on the maps shall be attested in such manner as the Chief Commissioner may direct. One copy of every such map shall be deposited in the office of the Deputy-Commissioner, and another copy in the office of the chief Forest officer.

5. There shall be two classes of Government forests under Act VII. of 1865, namely, "reserved" and "open."

PART II.

Of reserved forests.

6. Reserved forests are such forests as the Chief Commissioner may from time to time declare to be reserved in the manner hereinafter provided. The chief Forest officer and his subordinates shall have the entire management of, and control over, the reserved forests and their products.

7. No forest shall be declared to be reserved until its boundaries have been clearly marked off by substantial marks at all points where no natural boundaries exist. Should villages be included within the forest, the boundaries of the village lands must be marked off in the same manner as the external boundaries of the forest.

8. When the boundaries of a forest have been marked off as required by Rule 7, the Chief Commissioner may, by a notification in the *Assam Gazette*, specifying the boundaries of such forest, declare it to be reserved.

9. As soon as a forest has been declared to be a reserved forest under Rule 8, a notice shall be published by the Deputy-Commissioner in the neighbouring villages, mentioning the boundaries of the reserved forests, warning the villagers not to commit trespass or mischief by entering or damaging the reserved forest, and explaining to them the restrictions imposed on them in consequence of the declaration. A copy of this notice shall be sent to the district Forest officer. The chief Forest officer in the Province shall give prompt attention to any complaints which may subsequently be preferred, to the effect that the restrictions so imposed infringe rights of, or inflict hardship upon, individuals or communities.

10. Existing roads or pathways through a reserved forest shall be deemed to be authorized until they are closed in the manner hereinafter provided. The chief Forest officer may, with the concurrence of the Deputy-Commissioner of the district, close any existing road or pathway through any reserved forest, and assign a new way instead of it, provided that the new way so assigned be a reasonably convenient substitute for the road or pathway so closed. Public notice of the closing of such a road or pathway shall be given in the villages adjoining the reserve.

11. Except in the exercise of a right saved by Section 2 of Act VII. of 1865, or when any lawful authority has been given by the chief Forest officer, or any Forest officer specially authorized by him in that behalf, no person shall do any of the following acts in a reserved forest:—

(*a*).—The cutting of "jhúms," or the carrying on of any other form of cultivation.

(*b*).—Setting fire to the grass, dry leaves, or forest, or kindling any fire without effectually preventing its spread.

(*c*).—Burning lime or charcoal.

(*d*).—Felling, girdling, cutting or lopping, marking, burning, stripping off bark or leaves, tapping for oil, varnish, gum or resin, or otherwise injuring any trees, shrubs, or bamboos.

(*e*).—Sawing up, converting, burning, marking, defacing, or altering marks on timber, and dragging, carting, or otherwise removing, timber or bamboos.

(*f*).—Cutting and removing grass, collecting and removing leaves, bark, wood-oil, resin, gum, lac, fruits, honey, wax, or any kind of forest produce, or horns, elephants' tusks, skins, hides, stones, lime, or other natural produce.

(*g*).—Entering or passing through any portion of the forest, except on authorized roads and paths.

(*h*).—Grazing cattle.

Part III.

Of open forests.

12. Open forests are such forests as may not, by notification under Rule 8, be included in the reserve forests. In these forests those kinds of trees shall be protected which the Chief Commissioner may from time to time notify in the *Assam Gazette* as reserved.

13. Within the limits of open forests, and subject to the proviso contained in Section 2, Act VII. of 1865, no person without the permission of the officer in charge of the forest, may mark, cut, girdle, fell, lop, bark, tap, or in any way injure any tree of the kinds which may be notified as aforesaid.

14. Should the chief Forest officer think it desirable to impose in any open forest any further restrictions than those above specified, he shall in the first place communicate his proposals to the Deputy-Commissioner, who shall give his opinion on the subject. Before approving of any such proposals, it will be the duty of the Deputy-Commissioner to satisfy himself that the proposed restrictions will infringe no rights or privileges which should be preserved, and to define precisely any privileges which should be kept intact. On receipt of the proposals, as agreed upon between the chief Forest officer and the Deputy-Commissioner, the Chief Commissioner will sanction the issue of notifications in the *Assam Gazette*, imposing such restrictions as he may think proper.

Part IV.

Of the use of rivers, streams, canals, and waters, of marking-hammers, of timber in transit, and of drift timber.

15. A list of the rivers, canals, streams, and waters, which shall be kept open for the transport of timber or forest produce, shall be made by the chief Forest officer in the Province, in conjunction with the Deputy-Commissioner of the district, for each district to which these rules shall have been extended, and shall be published for general information in the *Assam Gazette*. It will be the duty of the Deputy-Commissioner to see that these rules are not infringed in regard to such rivers, canals, streams, and waters.

16. Without the permission of the officer in charge of the nearest forest, no timber, the produce of any forest notified under the said Act, found adrift or stranded in such river, canal, stream, or water, shall be marked or converted, or cut into pieces or removed, neither shall any mark thereon be defaced.

17. All timber, the produce of any forest notified under the said Act, shall be stamped by the officer in charge of the forest with such marks as the chief Forest officer may direct.

18. All branding-irons or marking-hammers used in the marking of timber shall be registered in the office of the Deputy-Commissioner of the district in which they are to be used. A fee of Rs. 10 shall be paid for every branding-iron or marking-hammer so registered, and on payment of such fee a certificate shall be granted to the person registering the same.

19. The use by any private person of any Government timber mark, or of any other timber brand or marking-hammer, save the one registered in his own name, is prohibited.

20. All foreign timber brought into British territory shall be reported and stopped at such stations as the Chief Commissioner may from time to time direct, and such timber shall not be allowed to pass until it has been examined. The persons in charge of such timber will receive a pass in the form shown in Schedule A, from the officer in charge of such station, and the timber will be liable to detention, if found afterwards without a pass in any district to which these rules are extended, as provided in Rule 1.

21. All timber found adrift or stranded in the rivers, canals, streams, and waters named in the list published under Rule 15, shall be held to be the property of Government until the contrary is proved.

22. Any person who may have saved such drift timber shall, on receipt of such salvage as may be approved by the Chief Commissioner, deliver the same to such persons as are authorized by the chief Forest officer to receive it.

23. The officer in charge of a forest may take possession of any drift timber found in any river, canal, stream, or water, named in the list published under Rule 15, as to the ownership of which there may be any doubt, and the same shall be treated as drift timber under the following rules.

24. All drift timber collected by officers in charge of forests shall be stored at such depôts as the chief Forest officer in Assam may from time to time order to be established.

25. From time to time, as the collection of drift timber may render it advisable, public notices inviting claimants to the ownership of such drift timber to come forward, shall be issued by the officer in charge of the depôt at the chief stations of the district, and in the market nearest to the place or depôt at which such drift timber may be lying. These notices shall state the number and description of logs there collected.

26. Two months' notice shall be given for the reception by the officer by whom the notice was issued of claims to drift timber, after which, if not claimed, or if the claim be not established, the timber shall be sold on behalf of Government.

27. Claims to drift timber shall be sent to the officer by whom the notice was issued, with the particulars of marks by which it may be recognised. The said officer shall inquire into every such claim. If the claim is not disputed, he may, on being satisfied of its validity, release the timber after expiry of the term mentioned in the notice. If the claim is disputed, he shall endeavour to obtain the formal consent of the claimants to his arbitrating on their claims. Where the dispute cannot be so decided, and there exists any reasonable doubt as to the rightful owner, the officers shall retain possession of the timber until the question of ownership has been decided by the Civil Court having jurisdiction in the case. Provided that, if no claim be preferred in such court within one month from the date on which the officer declares his inability to settle the dispute, he may dispose of the timber on account of Government.

28. Claimants to whom timber is awarded under these rules must pay the salvage approved by the Chief Commissioner, and the other expenses (if any) incurred on account of such timber.

PART V.

Prevention of offences and punishments.

29. It shall be the duty of all Deputy-Commissioners and their subordinates, whether in the revenue or any other department, of all officers of police, and all officers of the Forest Department, to prevent the infringement of these rules.

30. Any person infringing any of these rules, for the infringement of which the penalty of confiscation is not provided by the said Act, shall be liable to be punished with a fine not exceeding Rs. 500, or, in default of payment of such fine, with imprisonment for such term as is mentioned in Section 67 of the Indian Penal Code.

SCHEDULE A.

(SEE RULE 20.)

Form of pass for foreign timber imported into British territory.

Number.	Date.	Owner or consignee.	Place of destination.	Description of timber.	Timber marks.	Number of logs or pieces.	TOTAL.

Officer in charge of Toll-station.

A. O. HUME,

Secretary to the Government of India.

APPENDIX III.

List of Rivers, Streams, and Waters in the Province of Assam, which shall be kept open for the transport of Timber or other Forest Produce notified in the Assam Gazette *of 31st March, 1877, page 78.*

UNDER the provisions of Rule 15 of the Assam Forest Rules, published at page 502 of the *Assam Gazette* dated 16th September, 1876, the following list of the rivers, streams, and waters, in the Province, which shall be kept open for the transport of timber or forest produce, is published for general information:—

Cachar District.

1. Barák River.
2. Jiri „
3. Digli „
4. Sonái „
5. Chinjur „
6. Rukmini „
7. Dhálesvári „
8. Kuki Cherra River.
9. Jugi Cherra „
10. Kata Khal „
11. Jálingá Nadi.
12. Játingá River.
13. Bálesvár „
14. Gúmráh „
15. Rupa Cherrá Bil.

Sylhet District.

1. Langái.
2. Singlá.

Goálpára District.

1. Sánkosh River and tributaries.
2. Gangadhur ditto.
3. Tipkai ditto.
4. Gáuráng ditto.
5. Chámpámáti ditto.
6. Mánás ditto.
7. Singrá River and tributaries.
8. Garúa ditto.
9. Phulnái ditto.
10. Kalpáni ditto.
11. Dudnoi ditto.
12. Jingiráni ditto.
13. Brahmaputra River, and all sutás, horás, &c., which are confluent with it.

Kámrúp District.

1. Kulsi and Hatteekonda Rivers, and their tributaries, Dorun and Bokladuár Nadis.
2. The Kulsi Khál.
3. Dárgeerung Nadi.
4. Dungi and Bárábakro Dungos.
5. Kindumáráng Jhán.
6. Koloopkhari Jhán.
7. Hahoocr and Khurkhuri Nadis.
8. Bátá River and Mureá or Moirá Rivers, with their feeders.
9. Tingá Khál, Soonkhorá Nadi, and the Niá Nadi, with tributaries.
10. Chotapáni and Soorkee Nadis.
11. Baralu Nadi.

Darrang District.

1. Bar Nadi,
2. Noá Nadi, or Bhálá Nadi.
3. Nonái Nadi.
4. Dhunsiri.
5. Rowtá.
6. Belsiri.
7. Bháirábi.
8. Geladhari.
9. Bargong.
10. Burái.

Nowgong District.

1. The Jamuná, Kapili, Kaláng, and Kiling Rivers, and tributaries.
2. Gángádiá and Dikháru Rivers.
3. Dimál and Harina Streams.

Sibságar District.

1. Disang.
2. Dikhow.
3. Bogdái.
4. Dhansiri.

Lakhimpur District.

1. Brahmaputra.
2. Dehing.
3. Disáng.
4. Noa Dehing.
5. Diráh.
6. Koliapáni.
7. Tengápáni.
8. Kerwa Nadi.
9. Dángári „
10. Dúm-dúm „
11. Dibru „
12. Tingrái „
13. Sessa „
14. Tipling „
15. Dighoy „
16. Sonái „
17. Desáin „
18. Derái „
19. Sisi River.
20. Kondil „
21. Garmárah Nadi.
22. Sálkháwáján.
23. Mytung Ján.
24. Rángá Ján.
25. Tiphookján.
26. Likaján.
27. Dádiáján.
28. Momáriján
29. Dinján.
30. Mekhla Nadi.
31. Dikhoomján.
32. Kakarkota.
33. Larunján.
34. Kherkotiá Hootis.
35. Dikrang.
36. Hajunparajan.
37. Bhogra Nadi.
38. Dhikrájuli.
39. Sáns Nadi.
40. Rángá „
41. Dirju „
42. Joyhing „
43. Dhal „
44. Kadam „
45. Ghogar.
46. Jia dolong.
47. Subansiri and its various sooties.
48. Dirpai Nadi.
49. Noanai.
50. Kumatia.
51. Sámpára.
52. Kathu.
53. Charikaria.
54. Dhál.

S. O. B. RIDSDALE,

Secretary to the Chief Commissioner of Assam.

APPENDIX IV.

Register of Lands taken up by the Forest Department for Timber Depôts.

GOALPARA FOREST DIVISION.

GOÁLPÁRA DISTRICT.

I. THE DHUBRI DEPOT.—Situated in the sub-divisional station of Dhubri, the head-quarters of the divisional Forest officer west of the Dhubri Rock, on the south side, or right bank, of the Brahmaputra.

Area.—Seven acres, three roods, twenty-four poles.

Boundaries.—North.—The road leading past the post-office from the bazar to the cutcherry, a distance of 5 chains 20 links from boundary-mark No. 1, to the east of the wooden bridge, to boundary-mark No. 2, under a Tamarind-tree near the Sikh temple, and thence along the foot of the Dhubri Rock to boundary-mark No. 3.

East.—A survey line running due south, from boundary-mark No. 3, to the low-water line of the Brahmaputra River.

South.—The low-water line of the Brahmaputra River, from the southern extremity of the eastern to southern extremity of the western boundary.

West.—A survey line bearing 356° 39′, marked by a trench, from the low-water line of the Brahmaputra River, to boundary-mark No. 1, on the road leading from the bazar.

II. THE SURIAMUKH DEPOT.—Situated at Suriamukh, in pergunnah Gurla, on the right bank of the Godádhur River, about six miles from the Guma Reserve.

Area.—Fourteen acres, one rood, nine poles.

Boundaries.—North and East.—The low-water line of the right bank of the Godádhur River, from the northern extremity of the western to the eastern extremity of the southern boundary.

South.—A survey line bearing 272° 15′ from the low-water line of the right bank of the Godádhur River to boundary-mark No. 1.

West.—A survey line bearing 322° from boundary-mark No. 1, to the low-water line of the Godádhur River.

III. THE BOGRIBARI DEPOT.—Situated at Bogribari, in pergunnah Purbatjuar, on the right bank of the Tipkai and Brahmaputra Rivers.

Area.—Thirteen acres, one rood, seventeen poles.

Boundaries.—North.—A survey line from the low-water line of the right bank of the Tipkai and Brahmaputra Rivers, running due west to boundary-mark No. 1, on the road leading past the police-station towards the bazar; thence down this road a distance of 5 chains 64 links to boundary-mark No. 2; and thence a survey line bearing 282° and measuring 4 chains 63 links in length to boundary-mark No. 3.

West.—A survey line from boundary-mark No. 3, due south, to the low-water line of the right bank of the Brahmaputra River.

South and East.—The low-water line of the Brahmaputra and Tipkai Rivers, from the southern extremity of the western to the eastern extremity of the southern boundary.

IV. THE BILASIPARA DEPOT.—Situated at Bilasipara, in pergunnah Chapur, on the right bank of the Gaurang River.

Area.—Eight acres, one rood, seven poles.

Boundaries.—North.—A survey line bearing 289° 30′ from low-water line of the right bank of the Gaurang River, to boundary-mark No. 1, on the road leading towards Fokiragaon.

West.—The road leading towards Fokiragaon from boundary-mark No. 1, a distance of 18 chains and 8 links, to boundary-mark No. 2.

South.—A survey line bearing 108° 45′ from boundary-mark No. 2, to the low-water line of the Gaurang River.

East.—The low-water line of the Gaurang River from the eastern extremity of the southern to the eastern extremity of the northern boundary.

V. THE KOKRAJHAR DEPOT.—Situated at Kokrajhar, in pergunnah Khuntaghat on the left bank of the Gaurang River.

FIRST PART.

Area.—Eighteen acres, one rood, thirty-seven poles.

Boundaries.—North.—A survey line marked by a trench bearing 273° 30′ from a boundary-mark No. 1, to the low-water line of the left bank of the Gaurang River.

West and South.—The low-water line of the Gaurang River, from the western extremity of the northern to the southern extremity of the eastern boundary of this depôt.

East.—A survey line marked by a trench bearing 30′ from the low-water line of the left bank of the Gaurang River to boundary-mark No. 1.

SECOND PART.

Area.—Two acres and three poles.

Boundaries.—North.—A survey line bearing 71° 30′ from the low-water line of the Gaurang River to boundary-mark No. 1.

East.—A survey line bearing 162° from boundary-mark No. 1, a distance of 4 chains, to a boundary-mark No. 2.

South.—A survey line bearing 252° from boundary-mark No. 2, to the low-water line of the Gaurang River.

West.—The low-water line of the Gaurang River from the western extremity of the southern to the western extremity of the northern boundary.

Note.—The low-water line for the time being of all the rivers on which these depôts are situated is kept accessible to the public for the purpose of navigation.

APPENDIX V.

Statement of results of valuation surveys made in the Sidli Forests, Goálpára District, Assam.

Maligaon Block.

Number.	Position of line of survey.	Number of trees counted. Sál. I. Under 1 cubit.	Sál. II. From 1-2 cubits.	Sál. III. From 2-3 cubits.	Sál. IV. From 3-4 cubits.	Chelani. I. Under 1 cubit.	Chelani. II. From 1-2 cubits.	Chelani. III. From 2-3 cubits.	Chelani. IV. From 3-4 cubits.	Chelani. V. From 4-5 cubits.	Area of forest surveyed. Acres. Sál.	Lower hill forest.	Grass land.	Total.	Remarks.
6	From Kashikuri River to Sowmoka River.	0 to 9	526	103	..	..	..	2	..	..	15·8	4·1	13·4	33·3	Grass land, and a strip of poles from Kashikuri river to line No. 17; thence poles and saplings to Jia Jhora, and grass land to Bhunka river; beyond, fine high forest terminating with grass land near Sowmoka River.
7	Ditto ..	0 to 5	569	102	..	..	2	5	2	..	13·3	4·8	13·0	41·1	Grass land for half mile, then high forest and poles and a strip of grass near line No. 17; thence 20 chains of poles to Jia Jhora; thence grass and a strip of poles and saplings, and grass and lower hill forest near Sowmoka River.
8	Ditto ..	0 to 6	1,063	71	..	..	8	2	1	..	17·1	1·8	15·7	34·6	A strip of grass near Kashikuri River, followed by promising saplings and poles to Jhora, beyond line No. 17; thence grass, and one patch of poles followed by grass to line No. 18; thence poles and saplings to Sowmoka River.
9	Ditto ..	0 to 6	722	68	1	..	3	2	1	..	17·7	·4	11·7	29·8	Grass land, then strip of poles; and then grass land to line No. 17; thence grass for one furlong, and poles and saplings with strips of grass to Sowmoka River.
10	Ditto ..	0 to 8	903	188	4	..	6	4	3	..	21·2	4·2	9·2	34·6	Strip of grass followed by good saplings and seedlings to Jhora; thence clumps of poles separated by grass land to line No. 18, and poles and saplings to Sowmoka River.
11	Ditto ..	0 to 3	393	33	1	..	..	5	1	..	9·1	·5	7·9	17·5	Grass, with patches of saplings to Jhora, followed by poles and saplings to Sowmoka River, with patches of grass land.
12	Ditto ..	0 to 6	295	39	..	..	..	..	..	..	9·9	2·3	3·0	15·2	Saplings and poles to low ground; thence ditto with grass land to Sowmoka River.
17	From line No. 6 to Kashikuri River at south of forest.	0 to 6	1,464	138	3	..	..	3	..	..	32·9	3·6	44·2	100·9	Poles and saplings and one furlong of grass to line No. 7; beyond, grass and one furlong poles to Jia Jhora; beyond, half mile of grass and then fine poles and saplings to small Jhora, and grass to Kashikuri River.
18	Ditto ..	0 to 8	2,188	237	8	..	..	..	..	..	32·2	4·6	32·4	69·2	Grass land for ¾ mile, followed by a strip of fine poles and grass land and abandoned cultivation to line No. 8; thence poles and saplings for 2 miles, and half a mile of grass land, followed by poles and saplings to Jhora, and lower hill forest to Kashikuri River.
	Total ..	..	8,113	979	23	..	20	23	9	..	194·2	26·5	155·5	376·2	
	Contents of Block..	..	191,352	23,091	543	..	472	543	212	..	4,580	625	3,668	8,873	
	Number of trees per acre.	..	22	3	2	..	..	..	..	..	..	..	..	..	

BANSBARI BLOCK.

Number.	Position of line of survey.	Number of trees counted.									Area of forest surveyed.				REMARKS.
		Sál.				Chelani.					Acres.				
		I.	II.	III.	IV.	I.	II.	III.	IV.	V.					
		Under 1 cubit.	From 1-2 cubits.	From 2-3 cubits.	From 3-4 cubits.	Under 1 cubit.	From 1-2 cubits.	From 2-3 cubits.	From 3-4 cubits.	From 4-5 cubits.	Sál.	Lower hill forest.	Grass land.	Total.	
4	From north of block to Gaurang River, and from Gaurang River to southern boundary.	0 to ·7	1,168	203	8	..	2	5	1	1	23·2	..	19·9	43·1	Grass land, then scanty poles for ¼ mile; improves to high forest near Gaurang River. To south of Gaurang River high forest to line No. 12, followed by young poles and saplings and grass land.
5	From Gaurang River to Champamoti River at north of block.	0 to ·5	337	36	2	..	..	..	..	..	14	..	9·6	23·6	Grass from river to line No. 4, followed by poles to ½ mile from Dim-Dima River; thence scattered poles in grass, and grass and reed jungle last ½ mile to Champamoti River.
6	From Gaurang River to Champamoti River.	0 to ·5	518	92	..	..	..	..	..	..	14·8	..	16·3	31·1	Poles near Gaurang River; thence much grass and scattered saplings to Balajan; beyond the Balajan, fair poles and saplings to Lung-Lung River; thence grass and reeds to Champamoti River.
7	From Gaurang River to Bansbari cultivated land.	Not estimated.	360	69	10	..	..	3	..	..	9·8	..	9·3	19·1	Poles and saplings with grass near Bansbari, and in patches in the forest.
8	Ditto ..	0 to ·5	216	52	6	..	..	..	..	..	6·2	2·2	5·4	13·8	Much grass, with dying old trees and scattered saplings and seedlings.
9	From Gaurang River to Bosongaon cultivated land.	0 to ·9	462	83	7	..	..	1	1	..	8·6	..	4·6	13·2	Grass land near Gaurang River with scattered poles for ½ mile; thence poles and saplings and high forest from Bolajan to village land.
10	From Amguri village land to Champamoti River.	0 to ·7	1,230	151	4	..	8	3	1	1	22·1	3·2	14·5	39·8	Poles and saplings to low land; thence splendid young growth to River Tarang; beyond, grass and poles and saplings, followed by ½ mile of grass to Champamoti River.
11	Ditto ..	0 to ·8	903	165	2	..	..	..	..	..	15·1	2·3	12·3	29·7	Young poles and saplings and strips of grass land to line No. 16, and ½ mile beyond; thence grass to Tarang River, and thence well-stocked young forest to Chantaki pathway; beyond this, grass land to Champamoti River.
12	From Dhaolai-Jhora to Monsorgaon boundary.	0 to ·7	280	34	3	..	5	7	8	..	8·3	5·5	5·4	19·2	Grass land to line No. 4; thence across windings of Jhora through lower hill forest to fine growth of saplings, and last furlong grass land.
15	From north of block to Amguri, and thence to Monsorgaon boundary.	0 to ·6	3,989	514	27	..	..	4	..	..	71·7	..	30·8	102·5	Poles and saplings to pathway to Patgaon; thence, grass land for ½ mile, followed by poles and saplings and high forest near Bosongaon; then poles and saplings to Amguri. To the south, poles and saplings to cultivation, and, after crossing Doljhora Bhil, poles and saplings to Monsorgaon boundary.
16	From Moira-Jhora to Monsorgaon boundary of forests.	0 to ·6	433	64	0	..	4	8	..	..	5·4	2·8	11·0	19·2	Young high forest and poles; then grass land both sides of Tarang River, and poles and saplings to south.
	Total ..	..	9,896	1,463	78	..	19	31	11	2	199·2	16·	139·1	354·3	
	Contents of Block..	..	215,824	31,907	1,701	..	414	676	239	43	4,344	349	3,034	7,727	
	Number of trees per acre.	..	28	4	0·2	..	..	..	..	..	..	..	..	..	

NOTE.—Seedlings were estimated in decimals from ·0 to 1, a complete crop.

W. R. FISHER,

Asst.-Conservator of Forests, Goálpára Division.

APPENDIX VI.

Statement showing the result of an examination of the concentric rings of Sâl and Ajhar-trees in Sidli Forest, Goálpára District, Assam.

Number of tree.	Average radius, including sap-wood.	Average radius of heart-wood.	Number of concentric rings in radius, including sap-wood. Radius from centre. To 2·86 in. (Girth of tree. 1½ feet.)	To 5·73 in. (3 feet.)	To 8·6 in. (4½ feet.)	To 11·5 in. (6 feet.)	To 14·36 in. (7½ feet.)	Total.	Number of rings in heart-wood only.	Length of stem to first branch.
Sâl.	in.	in.								ft. in.
1	10·00	8·60	27	59	86	.....	.....	95	86	43 6
2	10·00	7·50	28	51	73	.....	.....	82	62	44 5
3	9·70	7·00	26	53	78	.....	.....	95	65	38 4
4	9·00	6·70	28	49	66	.....	.....	69	55	33 10
5	8·00	6·00	24	48	.....	.....	.....	68	51	40 8
6	7·80	6·45	22	46	.....	.....	.....	73	54	Not measured.
7	6·70	5·20	36	65	.....	.....	.....	77	59	40 8
8	6·20	4·70	20	41	.....	.....	.....	45	33	41 0
9	6·00	4·25	25	49	.....	.....	.....	52	40	Not measured.
10	5·70	4·20	22	.....	.....	.....	.....	45	34	49 0
11	5·70	4·00	28	.....	.....	.....	.....	58	42	Not measured.
		Average...	26	51	76	.....	.....	.....	.....	
Ajhar.										
1	15·00	14·30	10	22	40	50	70	80	62	Not measured.
2	15·25	14·50	14	23	33	47	62	70	62	Ditto.
3	13·37	12·37	15	22	30	46	.....	64	52	13 0
4	13·00	10·25	20	35	53	63	Not distinguishable.	.....	59	Not measured.
5	12·00	11·50	14	23	37	49	.....	59	45	14 0
		Average...	.....	25	39	51	66	.....	.....	

NOTE.—The trees the length of which was not measured had been removed previous to countings on the stump.

W. R. FISHER,
Asst.-Conservator of Forests, Goálpára Division.

APPENDIX VII.

List of Areas reserved for the growth of Forest in the District of the Khási and Jaintiá Hills.

KHÁSI HILLS.

Consecutive No.	State or District in which situate.	Name of Forest.	Boundaries.	Approximate area in square miles.	Remarks.
1	Cherra ...	Maophan Siom ...	North.—Ka Wahrait Kyrteng ... ... South.—Ka Rang-rywah ... ... East.—Ka Sai U Sanlait ... ... West.—Umiong	1¾	Topographical sheet No. 16. Scale 1 mile =1 inch.
2	Ditto ..	Tynriew Sier ...	North.—Maolyn-tang ... ... South.—Maopun Karytiang ... ... East.—Maolai-phew-pruh ... ... West.—Maolyn-tang...	¼	Ditto.
3	Ditto ...	Ka Lyng-pher ...	North.—Um-Rupei and cultivation of Laim Poonjee. South.—Ka Lynti Ka Lyngpher... ... East.—Ka Kyrna Ka-dier .. ... West.—Ka Lynti Ka Lyng-pher and the Government road at Maophan Snai.	½	Ditto.
4	Khyrim ...	Ryngab Forest ...	North.—By junction of Ka Wah Maittiang and Ka Wah Ladee. South.—Shillong and Jowai Road ... East.—Ka Wah Maittiang ... West.—Um Ladee and Ka Wah Nazir ...	½	Topographical sheet No. 21. Scale 1 mile =1 inch.
5	Lyng-rin ...	Kulai-lyng Sngun.	North.—U Lam Kulai-lyng Sngun and Ka Um Tymmeim. South.—Kaum Rillang ... ... East.—Ka Um Tymmeim ... ... West.—Ka Um Dem Nar	6½	Topographical sheets Nos. 12 and 13. Scale 1 mile=1 inch.
6	Maharam ...	Lao Blei ...	North —Ka Wah Mao Sdei ... .. South.—Lao Blei Poonjee ... ... East.—Ka Wah Um-ngi ... ... West.—Khasi tract to Lao Blei Poonjee ...	½	Topographical sheet No. 16. Scale 1 mile =1 inch.
7	Ditto ...	Sao Kuang ...	North.—Um Rillang ... ... South.—Khási track to Sao Kuang Poonjee ... East.—Ka Um Sao Kuang ... ... West.—Um Rillang	1½	Ditto.
8	Ditto ...	Nong Kydait, *alias* Ryngbynong.	North.—Mao Sao Shillong Hill ... ... South.—Ka Phot Jin Riew, to its junction with the Um-ngein. East.—Um-ngein ... ... West.—Khási track leading to Nongkydait and the Um Jin Riew from its source.	8½	Ditto.
9	Ditto ...	Rang Mao ...	North.—Ka Um Sympher and Ka Phot Kei Blang. South.—Ka Um Dur and Ka Phot Set Khla to their junction with Um-ngein. East.—The brow of the slopes of the mountain to the proper left of the Um-ngein. West.—The brow of the slopes of the mountain Lao Blei Jerwah, proper right of Um-ngein.	1	Ditto.
10	Mariao ...	Ka Miang Sain, near Nongka Sein.	North.—Ka Um Namlang and Ram Kyrna Rang Blang. South.—Ka Wah Mastain and hills ... East.—Hills ... ... West.—Ka Wah Namlang and the Ka Wah Mastain to its junction with the Namlang.	¾	Topographical sheet No. 11. Scale 1 mile =1 inch.
11	Ditto ...	Lang Krai ...	North.—Um Mao Kyma Rang to its junction with Um Lang Krai. South.—The Mao That Rai Shan mountain hill slopes. East.—Ka Um Soh Phi Sao ... ... West.—The Khási tract to Ramsi ...	½	Topographical sheet No. 15. Scale 1 mile =1 inch.
12	Ditto ...	Tersung ...	North.—Junction of Tersung and the Um Mylli. South.—Junction of the Basa with Tersung ... East.—Um Tersung ... ... West.—Slopes of the hills bordering on Um Tersung.	1	Ditto.

Consecutive No.	State or District in which situate.	Name of Forest.	Boundaries.	Approximate area in square miles.	Remarks.
13	Mao-iong ...	Mar Shillong ...	North.—Summit of mountain ... ... South.—Foot of mountain ... ... East.—Ka Wah Tydong Syng hill ... West.—Ka Pungli	1½	Topographical sheets Nos. 11 and 15. Scale1 mile=1 inch.
14	Ditto ...	Ka Lao Sain ...	North.—Khási track leading to Lyng-koi ... South.—Junction of Lait Lao Saim with Um Rillang. East.—Lait Lao Saim ... ... West.—Um Rillang	1½	Topographical sheet No. 16. Scale 1 mile =1 inch.
15	Maosynram ...	.....	North.—Junction of the paths to Leolong and Maolyng Byna. South.—The head of the gorge of the river Ka Nei Kyn Mei. East.—The path to Leolong ... ... West.—The path to Maolong Byna ...	1½	Ditto.
16	Myl-liem ...	Maorang ...	North.—Khási track to Myl-liem and Maorang poonjee. South.—The Um-yiam *alias* Um-ion ... East.—Umjibe ... ... West.—Um Japung Nongbet and Government road from Shillong to Maoflang.	3¾	Ditto.
17	Ditto ...	Maopat ...	North.—Um Sylli ... ... South.—Um Kynruth ... ... East.—Lyn Kadieng ... ... West.—Maoroh and Um Shiong	1	Topographical sheet No. 15. Scale 1 mile = 1 inch.
18	Ditto ...	Forest bordering on the new cart-road.	North.—Government cart-road and Um-yiam River. South.—The drainage from the cart-road to the Um-yiam at point where the cart-road joins the old bridle-path. East.—The old bridle-path to its junction with the new cart-road. West.—The Um-yiam River	1¾	Ditto.
19	Ditto ...	Umtru ...	North.—Um Kalin ... ... South.—Um Sumer ... ... East.—Um Larain to its junction with the Umtru. West.—Um Sumer to its junction with the Umtru.	2½	Topographical map, sheet No. 15. Scale 1 mile= 1 inch.
20	Ditto ...	Um Ram ...	North.—Um Sao ... ... South.—Um Ram ... . East.—The old bridle-path and Um Lang ... West.—The Um Ram to its junction with the Um Sao.	1½	Topographical map sheet No. 14. Scale 2 miles=1 inch.
21	Nongkhlow ...	Ter Sung ...	North.—Junction of Um Mylli or Billi with Tersung. South.—Junction of Ka Wah Ka Khlia with Tersung. East.—The summit of the eastern slopes of the hills bordering on the River Tersung. West.—River Tersung	1	Topographical sheet No. 15. Scale 1 mile =1 inch.
22	Ditto ...	Ka Lao-syn-iong near Maonai Poonjee.	North.—Um Mao Khli to its junction with the Um Mao Kap. South.—The Ka Kseh Kynmen Hill... ... East.—The Khási track leading from Monai to Lait Bidang. West.—The Um Mao Kap	1½	Ditto.
23	Ditto ...	Mairang Forest ...	North.—Um Nongphod to its junction with Umsoh Kyrdah. South.—Soh-pyllad Hill ... ... East.—Low land cultivation belonging to U Shang, of Mairang. West.—Khási track leading from Mairang to Laitdom.	¼	Ditto.
24	Ditto ...	Nongbri ...	North.—Ka Um Sum ... ... South.—Government high road ... East.—Ka Um Miang-ad ... ... West.—Lait Blei Hill and Ka Um Sum ...	2½	Topographical sheet No. 15. Scale 1 mile =1 inch.

Consecutive No.	State or District in which situate.	Name of Forest.	Boundaries.	Approximate area in square miles.	REMARKS.
25	Nong-spung...	Nong-spung ...	North.—Ka Um Dih Ser ... ... South.—Ka Phot Snain to its junction with Ka Pyndeng Longkra.. East.—Ka Um Dymiew ... ... West.—Ka Pyndeng Long-kra	¾	Topographical sheet No. 16. Scale 1 mile =1 inch.
26	Ditto ...	Lynkoi Forest ...	North.—Mao Bynnat rivulet ... ... South.—Pyndeng Shuong rivulet ... East.—Ka Wah Kroh Sem ... ... West.—Ka Lao Lyngdoh	¼	Ditto.
27	Nongstoin ...	Nongstoin Forest..	North.—Patsoh Myrkar, the Government road, till its junction with the track leading to Mao Mah Kir to the submit of the hills from which the Ka Wah Spar, a tributary of the Numba or Rytha, takes its rise. South. and East.—Numba, *alias* Ka Wah Rytha River, to its junction with the Ka Wah Spar. West.—The junction of the Ka Wah Spar with the Ka Wah Rytha to the summit of the hills from which the Spar takes its rise.	4½	Topographical sheets Nos. 11, 12, and 13. Scale 1 mile=1 inch.
28	Rambrai ...	Maodo Forest ...	North and East.—Um Soh Khar and Shuong U Koh Sngi. South and West.—Um Byrtich and Um Ngei-miong ...	7	Topographical sheet No. 11. Scale 1 mile =1 inch.
29	Maoflang ...	Um Ka Wang ...	North.—Ka Phod Lyngti Khrang ... South.—Ka Um Spar and Ka Kor ... East.—High road to Shillong ... ... West.—Ka Phod Mao Sngi Dykoh ...	¼	Topographical sheet No. 16. Scale 1 mile =1 inch.
30	Mao-flang and Nong-lywai.	Ka Khlao Ryngi Sohlong.	North.—Ka Wah Maorih ... ... South.—Niang-riat and Nong-lywai ... East.—The Umyiam River ... ... West.—The brow of the Ryngi Sohiong mountain.	1	Ditto.
31	Nong-lywai...	Ka Khlao Mao Kaleng.	North.—The Khási track leading from Nong-lywai towards Cherra. South.—Ka Wah Ko Kon ... ... East.—The brow of the Maoka Leng mountain to the proper left of the Umyiam. West.—The Umyiam River	½	Ditto.
32	Soh-iong ...	Lao Nongkseh ...	North.—Ka Um Langtrait ... ... South.—Ka Wah Nongspung ... ... East.—Ka Wah Nongspung ... ... West.—Khási track from Nongspung to Sohiong.	2¾	Ditto.
33	Ditto ...	Lao Sohing ...	North.—Lao Lyngdoh Sohiong ... ... South.—Lumlait Mao-pen ... ... East.—Jimiow Maokar watercourse adjoining the Sacred Grove. West.—Government road	¼	Ditto.
34	Laitlyngkote.	Laitlyngkote ...	North.—Ka Wah Kymai ... ... South.—Klih Um ... ... East.—Ka Phut Ker Masi, Ka Phut Um Soh Per. West.—Kylleng Kyllang	2¼	Ditto.
35	Lait-kroh ...	Lait-kroh ...	North.—Ka Langleng ... ... South.—Ka Khlih Umlakut, Ka Khlih Wah Synteng. East.—Ka Wi Phyniow, Ka Um Lakut ... West.—Ka Um Synteng, Ka Wah Myrthoh ...	¾	Ditto.
36	Mao Smai ...	Kyrna Ka Dier ...	North.—Um Rupei ... ... South.—Ka Lyngpher forest ... ... East.—Laiam Poonjee orchards and Khási track leading to Sohbao Poonjee. West.—Pan garden of Laiam Poonjee ...	¼	Ditto.
37	Nonglang ...	Nongkynah ...	North.—Ka Wah Pariong ... ... South.—Ka Wah Pariong and Rytham ... East.—Ka Wah Rytham ... ... West.—Ka Wah Pariong	¾	Topographical sheet No. 11. Scale 1 mile =1 inch.

JAINTIÁ HILLS.

Consecutive No.	Dolloiship in which situate.	Name of Forest.	Boundaries.	Approximate area in square miles.	REMARKS.
1	Nurtiang ...	Larnai forest ...	Part of the woods near the village of Larnai ... BOUNDARIES. *North.*—Ka Tumkrih. *East.*—Lum Laprut. *South.*—Lum Sophoh. *West.*—Um Mynri.	¼	Topographical sheet No. 21, scale 1 mile =1 inch.
2	Nongbah ...	Mookhlah ...	The woods near the village of Mookhlah near Umpamaí. BOUNDARIES. *North.*—Ka Wah Myntang. *East.*—Umpang Snam. *South.*—U Lynter. *West.*—Ka Krem Khla.	1	Ditto ditto.
3	Jowai ...	Jowai forest ...	The woods skirting the road between Jowai and Moodymai, between the 6th and 8th mile-posts. BOUNDARIES. *North.*—U Lum Jalong. *East.*—Ka Wah Jyngen. *South.*—Ka Khlaw Sala. *West.*—Madhoor.	1	Topographical sheet No. 22, scale 1 mile =1 inch.
4	Ditto ...	Munkrem ...	The woods near the station of Jowai ... BOUNDARIES. *North.*—Rangtang Dolloi. *East.*—Mynthong. *South.*—Ka Reat U Riang. *West.*—Mow Snam.	1	Ditto ditto.
5	Amwi ...	Makajai forest ...	The woods near the road between Makajai and Jarain. BOUNDARIES. *North.*—Um Mushai. *East.*—Makjai. *South.*—Umtlew. *West.*—Doosarblai.	1½	Ditto ditto.
6	Ditto ...	Doawar Blai forest.	Part of the woods near Doawar Blai, and that bordering on the Makajai up to the bridge. BOUNDARIES. *North.*—Um Moshai. *East.*—Makjai. *South.*—Umtlew. *West.*—Um Mongot.	1½	Ditto ditto.
7	Ditto ...	Markin forest ...	The wood a little below Jarain about the Markin stream. BOUNDARIES. *North.*—Jarain. *East.*—Markeng. *South.*—Amrykeng. *West.*—Ka Wah Mongot.	1	Ditto ditto.

Consecutive No.	Dolloiship in which situate.	Name of Forest.	Boundaries.	Approximate area in square miles.	Remarks.
8	Nong Jingngi	Massiang and Umlánghoo forest.	The timber standing on the banks of the Massiang and Umlanghoo, a little beyond the the village of Takniang. BOUNDARIES. *North.*—Wah Sten. *East.*—Tackniang. *South.*—U Lumpep. *West.*—La-daw.	¼	Topographical sheet No. 21, scale 1 mile= 1 inch.
9	Mim Sao ...	Myntang forest ...	The woods on the banks of the Myntang near the bridge over that stream. BOUNDARIES. *North.*—Haslai Borma. *East.*—Jwaladaw. *South.*—Laitawan. *West.*—Ka Slai Babeit.	¼	Ditto ditto.
10	Shilliang Myntang.	Umlyang forest ...	The woods on the banks of the Umlyang. BOUNDARIES. *North.*—Ka Khlih Khiat. *East.*—U Lum Sawang. *South.*—U Lum Sarang. *West.*—Ka Khlihiong That.	½	Ditto ditto.
11	Shangpung ...	Schan dieng forest	The woods about Schang dieng stream near Mowthlong. BOUNDARIES. *North.*—Shuong Mowthlong. *East.*—Lum Ksing Pymblong. *South.*—Lum Shong Ngiah. *West.*—Lum Mow Siim.	½	Topographical sheet No. 22, scale 1 mile =1 inch.
12	Rymbai ...	Ladakhar Um Swai forest.	The woods standing on the banks of the Um Ladakhar and Um Swai up to the point where the latter stream empties itself into the Ding Shablai stream near the village of that name. BOUNDARIES. *North.*—Ka Wah Mowlybnah. *East.*—Pynmai Tyng Ka. *South.*—Uah Suwe U Bri. *West.*—Umladkhar.	1	Ditto ditto.
13	Sohtynga ...	Um Shyngiar forest	The woods about the Um Shyngiar for about 3 miles up and down the stream from Ryair Khyllaw. BOUNDARIES. *North.*—Ka Wai Khyrwi. *East.*—Ka Jew Khyllaw. *South.*—Ka Um Shyngiar. *West.*—Mowtypep.	1	Ditto ditto.
14	Nongkhlih ...	Jogor Sing ...	Jogor Sing Woods ... ... BOUNDARIES. *North.*—Ka Wah Liteng. *East.*—Ka Blai. *South.*—Ka Wah Lynjú. *West.*—U Reát Lapathai.	¼	Topographical sheet No. 26, scale 2 miles =1 inch.

Consecutive No.	Dolloiship in which situated.	Name of Forest.	Boundaries.	Approximate area in square mile.	Remarks.
15	Nongkhlih ...	Saipung ...	The Saipung woods ... ... BOUNDARIES. *North.*—U Lum War. *East.*—Wah Khynriam. *South.*—U Lum Shken. *West.*—Um Pioit.	1½	Topographical sheet No. 26, scale 2 miles = 1 inch.
16	Nongthalong..	Nongthalong forest.	The woods about the limestone that crops up on the road from Jarain to Nongthalong. BOUNDARIES. *North.*—U Jewphlang. *South.*—U Shymboh and U Shnongkor. *East.*—U Nonglyndang. *West.*—Ka Am Tyrmat to its junction with the Amhynrow and the Shohkha road to Shnongkor.	¾	Topographical sheet No. 23, scale 2 miles =1 inch.
17	Sat Pator ...	Um Manor forest ...	The woods on the small hills bordering on Jaintiápore, and opposite the village of Um Manor. BOUNDARIES. *North.*—Lumpomtybuh. *East.*—Um Tyrngai. *South.*—Ka Khlewpoh Sangap. *West.*—Um Sohpiang.	¼	Ditto ditto.
18	Lakadong ...	Tee Shang forest...	The woods on the banks of the Teeshang stream. BOUNDARIES. *North.*—Khlaw Koriang. *East.*—Terang Salah. *South.*—U dong ryngah. *West.*—Uah pomblang.	¼	Ditto ditto
19	Lakadong ...	Rowai forest ...	The woods on the banks of the Rowai ... BOUNDARIES. *North.*—Maw khong. *East.*—Umsek. *South.*—Ka Um Marhat. *West.*—Um Kasang.	¼	Ditto ditto.
20	Jowai ...	Mooralliang forest..	The woods called Mooralliang on the road to Nongthalang. BOUNDARIES. *North.*—Lum Sumar. *East.*—Umlung phlang. *South.*—Ka Umphet. *West.*—Ka Khlihumdot.	¾	Topographical sheet No. 22, scale 1 mile = 1 inch.

APPENDIX VIII.

Form of License for collecting Lac.

[Seal of Deputy-Commissioner.]

To SON OF RESIDENT OF

WHEREAS the right to collect indigenous lac in the district of within the boundaries specified in the margin, has been sold to you at the public auction held on the 187 , at a revenue of Rs. for the year, 187 , this license to collect such lac within the said extent of country from 187 , to 187 , is hereby granted to you on the following conditions:—.

Boundaries.
North.
East.
West.
South.

I.—That the revenue payable by you shall be paid in the amounts and on the dates specified herein,—*viz.*: [To be fixed by Deputy-Commissioner, when issuing the license.]

II.—That if the above instalments, or any part of them, remain unpaid on the dates above specified, or in case of cancellation of this license, on the date of such cancellation, the amount due shall be recoverable as an arrear of land revenue.

III.—That you shall collect lac yourself, or by agents acting on your behalf, and shall not sell, transfer, or sub-let the right of collection hereby granted to you, or any part thereof, to any other person.

IV.—That neither you nor any agent acting on your behalf shall cause any unnecessary injury to the trees on which the lac is produced, nor to any other trees or forest produce within or adjacent to the area specified in this license.

V.—That neither you nor any agent acting on your behalf shall cause injury or unnecessary annoyance to any border tribes or persons cultivating or resident within or adjacent to the area specified in this license.

VI.—That if you or any agent acting on your behalf shall commit a breach of any of the conditions of this license, such license may, in the discretion of the Deputy-Commissioner, be forthwith cancelled, and such fine inflicted as he may deem adequate for the offence committed.

Deputy-Commissioner.

Extract from the Proceedings of the Chief Commissioner of Assam, in the Revenue, Department,—Shillong, the 29th September, 1877.

READ—

Progress Report of Forest Administration of Assam, by G. Mann, Esq., Deputy-Conservator of Forests.

RESOLUTION.—The Chief Commissioner recognises the great importance of marking off the reserve forest tracts in the Province before they are despoiled and before private rights spring up, and the Deputy-Conservator has correctly stated the reasons for immediate action in the matter.

2. It is most important that mouzahdars and other subordinate revenue officers should be taught the necessity of forest protection, and the results that may be expected from it, and the Chief Commissioner hopes that in time the same lesson will be impressed upon the people themselves. The Chief Commissioner's proposal, sanctioned by the Government of India, to allow mouzahdars a commission of 10 per cent. on all forest revenue collected by them has been introduced, and Colonel Keatinge expects it to be attended with the best results. In the absence of special agency for the management of the large tracts of open forest in the Province, Colonel Keatinge must rely upon the zeal and activity of district officers. He trusts that they now all recognize the difference between permitting forest to be cut for the extension of permanent cultivation and permitting its wanton destruction by fire for the sake of a three-years' crop, or, worse still, in needless waste.

3. PARA. 2.—Six tracts, comprising an area of 236 square miles, have been declared Government forest in the district of Cachar, as well as one large tract of 509 square miles, situated beyond the "Inner Line" of that district. The work of demarcation has been very effectively carried out during the year.

4. PARA. 9.—The valuable Sâl forests in the Goálpára district have also been demarcated during the year, and have since been gazetted as Government reserves.

5. PARAS. 7, 8, AND 11.—The Nowduar forest and the Charduar Rubber plantation in the Tezpur division, and the Saipung forest, in the Khási and Jaintiá Hills, have been made over to the direct management of the Forest Department.

6. PARA. 17.—The Chief Commissioner is satisfied that district officers are now exerting themselves to secure the reserve forests in their districts from destruction by fire originating in village lands outside the boundaries. The matter has been particularly brought to their notice.

7. PARA. 26.—Satisfactory progress has been made in clearing the Sâl forests in the Gauháti division of creepers.

8. PARA. 28.—The climate of Assam is, no doubt, favourable to the growth of the Rubber-tree, and the Chief Commissioner looks for considerable extensions of this class of plantation. Much has yet to be learned regarding the best methods of propagation.

9. PARA. 32.—Mr. Mann notes that the *Eucalyptus globulus* has failed in the Government plantation at Shillong. He should not omit to notice that in other situations at that station it grows well, and that several self-sown seedlings are thriving under the old trees.

10. PARA. 36.—The Chief Commissioner regards the increase that has taken place in the number of trees sold standing as a hopeful sign.

11. PARAS. 42—46.—The exorbitant cost of transport and the high price of labour in Central and Upper Assam are at present formidable obstacles in the way of utilizing to any appreciable extent the many excellent products of the forests in that part of the Province.

12. PARA. 48.—Forest receipts show a decrease of Rs. 25,733, as compared with the receipts for the previous year. This decrease is adequately explained by the transfer of receipts from elephant mehals and soom forests to Miscellaneous Land Revenue. The revenue from elephant mehals credited to forests in the previous year amounted to Rs. 49,904.

13. PARAS. 50—51.—Colonel Keatinge deeply regrets the decision Government has arrived at regarding the income derived from soom forests and elephant mehals. The

forests of Assam, if properly managed, should be a main source of provincial wealth. If, however, legitimate forest revenue is alienated, and the conservancy establishments are proportionately cut down, the petty economy of to-day will be the cause of heavy loss in the future.

14. PARÁ. 52.—The grand total of expenditure shows a net increase of Rs. 28,036 since the previous year, and an excess of Rs. 8,351 in expenditure over receipts. The figures for the two years are as under :—

	Expenditure. Rs.	Receipts. Rs.
1875-76	61,883	1,07,301
1876-77	89,919	81,568

The details are fully explained in the Report, and call for no additional remarks. The forest reserves in Cachar showed a surplus of Rs. 676 in receipts over expenditure. All the other divisions under the direct management of the Forest Department were necessarily in deficit, conservancy having only just commenced. The greater part of the revenue, *viz.*, Rs. 42,346, was collected by the district officers. On the whole, the financial results of forest management in the Province during the year are as fairly satisfactory as can be expected in the present early stage of operations.

15. PARAS. 55—64.—Good progress has been made in the demarcation and survey of the forests in the Eastern Duars of the Goálpára district. The Chief Commissioner awaits the map of the Sidli forest on a reduced scale, promised in paragraph 60 of this Report.

16. PARAS. 66—67.—The Chief Commissioner considers Mr. Fisher's operations for the protection of the survey blocks of the Sidli forest from fire to have been as successful as could be expected. The measures adopted, of enlisting the goodwill of the headmen of neighbouring villages, were very discreet, and should be employed by other officers wherever opportunity offers.

17. PARA. 84.—The restricted operations in Teak planting at the Kulsi forest, in Kámrúp, has Colonel Keatinge's approval. The experiment now made is sufficient to show how far the tree will thrive in Lower Assam, and until this point is determined no heavy outlay is desirable. Money expended on Teak plantation may or may not yield a return; that devoted to the conservation of Sâl is a sure investment.

18. PARAS. 89—90.—The financial results for the Gauháti Division are not favourable, and show a large deficit of Rs. 12,373. The receipts are small, and fell off from Rs. 5,378 in 1875-76 to Rs. 2,983 in the year under report. The explanation given by the Deputy-Conservator is, no doubt, correct, and the forests of this division, valuable as they are, cannot be expected to pay until the demand for timber increases. The mature trees are certain to be in demand within a few years.

19. PARAS. 96—107.—The Chief Commissioner has read with much interest the description of the experiments tried with regard to the propagation of the *Ficus elastica* in the Tezpur division.

20. PARA. 108.—The total failure of the *Hevia Brazilienis* (the Para Caoutchouc-tree) is much to be regretted.

21. PARA. 112.—The financial results in this division are not satisfactory, there being an excess of Rs. 19,915 in expenditure over receipts. The Deputy-Conservator attributes this deficit to the unusual expenses incurred in the purchase of buildings and elephants. There is a small increase in receipts since the previous year.

22. PARAS. 118—126.—The forests in the Cachar division, owing to the large local demand for timber, promise to show very satisfactory results hereafter. The temporary check to the timber trade was an unavoidable result of the change of system, consequent on Government for the first time assuming a detailed management of these forests.

23. PARA. 133.—Contains an interesting description of the size attained by the indigenous Tea-trees in the Nága Hills. The manner in which these very valuable plants are destroyed is but a sample of how the national wealth of this Province has been and is still wasted.

24. PARA. 136.—The revenue realized by Deputy-Commissioners in unreserved forests amounted to Rs. 42,346 during the year, as compared with Rs. 96,388 in the previous year. The receipts in the Gáro Hills were Rs. 9,785, and were larger than in any other district of the Province. Mr. Mann should have given a comparative statement

of income collected by each Deputy-Commissioner for the year of report compared with the year previous, to enable the Chief Commissioner to inquire the reason of the short collections in certain districts. This information should not be furnished without delay.

25. PARAS. 132—134.—The result of the inquiries that were made with regard to indigenous lac and the cultivation of rhea in Assam are not encouraging. Labour is as yet excessively dear, and the prevalent want of enterprise among the native Assamese is a serious bar to success.

26. PARA. 140.—The work of inspection was carried out thoroughly during the year.

27. PARA. 141.—The Chief Commissioner notes with satisfaction that buffaloes have been utilized in forest operations. He would like to see these animals still more generally employed. Well-trained teams with good drivers should be able to accomplish much that is now done by elephants. The average price of an elephant is Rs. 2,000 whilst a team of four buffaloes should not cost more than Rs. 160.

CONCLUSION.— The Chief Commissioner has read with pleasure Mr. Mann's interesting Report. He desires to express his thanks to Mr. Mann and to the Forest officers subordinate to him for the zeal they have displayed in the performance of their duties.

By order of the Chief Commissioner of Assam,

T. J. MURRAY,

Offg. Secretary to the Chief Commissioner of Assam.

No. 3,044.

COPY forwarded to the Deputy-Conservator of Forests, Assam, for information and guidance.

No. 3,045.

COPY, with 400 copies of the Report, submitted to the Government of India, in the Department of Revenue, Agriculture, and Commerce.

No.

COPY, with copy of the Report, forwarded to the Deputy-Commissioner of

By order of the Chief Commissioner of Assam,

T. J. MURRAY,

Offg. Secretary to the Chief Commissioner of Assam.

SHILLONG,
The 1st October, 1877.

[No. 159—700—2-10-77.]

PROGRESS REPORT

FOREST ADMINISTRATION

IN THE

PROVINCE OF ASSAM

FOR THE YEAR

1877-78.

By GUSTAV MANN,

DEPUTY-CONSERVATOR OF FORESTS, ASSAM.

SHILLONG:
PRINTED AT THE ASSAM-SECRETARIAT PRESS.

1878.

No. 64A.

FROM GUSTAV MANN, ESQ.,

Deputy-Conservator of Forests, Assam,

TO THE SECRETARY TO THE CHIEF COMMISSIONER OF ASSAM.

Dated Shillong, the 26th August, 1878.

SIR,

I HAVE the honour to submit the Annual Administration Report of the Forest Department in Assam for 1877-78.

2. As in former years, the earlier submission has not been possible for the want of the final statement of Forest Accounts from the Deputy-Accountant-General, which was only received this day.

I have the honour to be,

SIR,

Your most obedient Servant,

GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN ASSAM,

For the year 1877-78.

By GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

INTRODUCTION.

PROFESSIONAL Forest Conservancy has steadily progressed for some years now in the Province of Assam, and, although the as yet small revenue, in proportion to area, has been a drag on more rapid progress, inasmuch as forest establishments were limited according to income, the foundation is laid for the permanent maintenance as forest of areas amounting in the aggregate to 1,983 square miles by demarcating and declaring them reserves, or State forests, under the Forest Act.

On account of the small revenue, and consequently limited forest establishments, the demarcation of reserves has not yet been extended to all districts of the Province, and Sibságar, Lakhimpur, and Sylhet have had as yet no professional forest conservancy. But proposals were submitted during the year for an increase of establishments, with a view to the forests of Sibságar and Lakhimpur being placed direct under the Forest Department, and have so far been sanctioned by the Supreme Government, that at least one more district, and a very important one, that of Sibságar, will receive during the current year a forest officer, with a staff of subordinates, to ensure the protection, and hereafter the improvement, of its forests; whilst in the Lakhimpur and Sylhet districts the areas to be maintained as forests have been defined and gazetted as "open or unreserved" Government forests, and placed under the management of the District Officers.

In the Sylhet district the Chief Commissioner has sanctioned restrictions to render the strictest conservancy possible; and in the Lakhimpur district the main danger of forest destruction, the jhúming, has been staved off, and time been gained to introduce more perfect measures hereafter. The reason that in the Gáro Hills no forests have as yet been selected and placed under a forest officer was the uncertain state of affairs as regards the settlement of the lands on which the most valuable forests are situated, many of which were claimed by zemindars.

On this matter, the Supreme Government has passed final orders during the year, which will enable the Deputy-Commissioner, it is hoped, to arrange with some of the jhúming villages to leave the more valuable Sâl forests, over which the Government has an exclusive right, and to decide on the preservation and management of others, which are, under the above orders, settled conditionally with zemindars. The Chief Commissioner has ordered that an improvement in the system of working the Gáro Hills forests shall be made.

Thus, whilst it may be said that forest conservancy has been fairly started in every district of Assam, the extension of professional forestry by the direct management of this department can only be extended to Lakhimpur, Sylhet, and the Gáro Hills, as the resources of the forests become more developed and revenue increases, or if the receipts from elephants and Soom forests are again credited to "Forests," instead of to "Miscellaneous Land Revenue."

CHAPTER I.

SUMMARY OF ADMINISTRATION.

Area and Boundaries.

2. The area added to the forest reserves during the year is 72·37 square miles, or 46,322 acres. This area is made up by two reserves, both situated in the Goálpára district, and forming part of the Goálpára forest division. They are the following:—

Goálpára division.

	Area. Square miles.
The Sidli forest reserve	68·37
An addition to the second or western part of the Cherang Duar reserve	4·
Total ...	72·37

Both these forests are almost exclusively Sâl, and, although worked to excess before they were placed in charge of the Forest Department, they are well stocked and comparatively free from creepers, so that, if the fire is kept out, they will be a great source for meeting the daily increasing demand for this, the most valuable wood of the Province.

3. These additional reserves are shown in the prescribed tabular statement of area of reserved forests (Form No. 45) attached to this Report, and short descriptions are given in Appendix I., Register of Reserves.

4. The cutting of the three compartments, 20, 21, and 22, of the Maligaon block, in the Sidli circle, was carried out during the year, and completed the work of dividing this forest into compartments.

5. The better demarcation of all the reserves with numbered boundary-posts of heartwood of Sâl and mounds has been carried out, except in those cases where a re-adjustment of the boundary or an addition to the reserve is contemplated. The necessary information for the submission of proposals to this effect were collected, and will be submitted for the Chief Commissioner's consideration during the current year.

6. Similar information was collected and demarcation completed of two small Sâl forests, measuring in the aggregate about 1,730 acres, and a Sisu and Khair forest measuring about 14·34 square miles, or 9,180 acres. The necessary proposals to have these forests declared reserves will also be submitted in the current year for the Chief Commissioner's consideration and orders.

7. Linear valuation surveys were commenced in the Guma reserve, and extended over a length of 19½ miles. The same length of compartment lines were cut, and a map prepared. The artificial boundary in the south of this reserve was again surveyed and demarcated by numbered posts of Sâl and mounds of the prescribed size. Whilst this work was being carried out a wrong boundary, put up by order of the zemindars of the adjoining Parbatjuar, and encroaching on the Guma reserve by about two square miles, was found out, and the area recovered, which occurrence will be further noticed in more detail in Chapter II. of this Report.

8. No addition was made to the reserves in the Gauháti forest division, Kámrúp district, and the Kholahat and Deboka reserves in the Nowgong district, area 3·81 square miles, or 2,440 acres, were transferred from this to the Tezpur forest division, as more convenient. The more substantial and accurate demarcation of the Barduar reserve by numbered boundary-posts and mounds of the prescribed size has been completed after a re-survey of the boundary, and a map showing the position of each boundary-mound accurately is under preparation. The same work was completed in the Jara Sâl forest, and the Kulsi plantation reserves. All old boundary mounds damaged by the weather or wild elephants were repaired.

Gauháti division.

9. The survey and demarcation of the boundary between the Khási Hills and the Kámrúp district by the Topographical Survey Department was completed during the year; but the maps became available too late in the season to do much in the way of

selecting new reserves along this boundary. However, the divisional officer, Mr. Mein, was able to inspect carefully about half of these forests, and it is hoped that all the information wanted will be collected during the current year to enable the Deputy-Conservator to submit definite proposals to declare these valuable forests reserves. Meanwhile, the Deputy-Commissioner of Kámrúp has already been directed by the Chief Commissioner to prevent all encroachments on these forests by cultivation.

10. Valuation surveys were completed in the northern half of the Barduar reserve, the progress in which work is necessarily somewhat slow, on account of the difficult hilly and broken ground to be gone over.

Tezpur division.

11. The only addition to the reserves in the Tezpur forest division were the Kholahat and Deboka reserves, area 3·81 square miles, or 2,440 acres, transferred from the Gauháti forest division. The more substantial demarcation of the southern boundary of the Khalingduar reserve was completed, and a map showing the distribution of the different descriptions of forests in this reserve was prepared.

12. The Sagunbai forest, in the Darrang district, and adjoining the Khalingduar reserve, was inspected, demarcated, and a map showing the distribution of the different descriptions of forests prepared, with a view to have this also declared a forest reserve. The same information was collected regarding a small Sâl forest in the Diju valley of the Nowgong district, and the necessary proposals regarding them will be submitted during the current year.

13. The demarcation of the land appertaining to the village of Rungajangaon, in the Nowduar reserve, with numbered posts and mounds was carried out, and the area over which the Akhas will be allowed the privilege of fishing and grazing their cattle has been defined.

14. The improved demarcation of the Kholahat reserve with numbered boundary-posts and mounds was completed, and the same work commenced at the Deboka reserve.

15. The boundaries of all the other reserves were also gone over, and posts and mounds repaired where necessary.

Golághát division.

16. The area of the reserves in the Golághát division remains the same.

Two valuable Nahor forests on the left bank of the Daigurung river, opposite the present control station, and extending in the aggregate over an area of 16·37 square miles, were surveyed, demarcated, and mapped, with a view of having them declared forest reserves. For the same purpose, an area of 16 square miles, chiefly covered with Nahor, and adjoining the present Mikir Hill reserve on the west and north, was examined and demarcated, to have it added to this reserve.

17. The land (68 acres) surrounding the village of Borhola was surveyed and demarcated for the use of the villagers, in addition to the rice land, area 25 acres, already in their possession.

Cachar division.

18. No addition was made to the reserves in the Cachar division.

19. The better demarcation of the tea grants and other settled lands either adjoining or included in the reserves has been pushed on as much as possible, and 34 miles 851 yards of boundary-line were cleared to a width of 20 feet, and boundary-posts and mounds erected on these lines at short distances, so that each is visible from the next. The numbering of these posts will be done in the current year. Much attention has been given to the preparation of maps of the tea grants and other settled land adjoining or included in the reserves, and they were completed of 23 of these estates, on the scale of 4 inches to the mile, and filed in the Atlas of the Direction Office. Copies were also kept in the divisional forest office.

20. The preparation of accurate maps of the reserves from the revenue survey records in the Deputy-Commissioner's office, was carried out under the supervision of Mr. Hare, Assistant-Commissioner in temporary charge of this division, and they are nearly completed.

Protection and Improvement.

Protective establishments.

21. The staff of subordinates for the general protection of the forests was found insufficient, and proposals for an increase were submitted during the year, and have partly been sanctioned by the Supreme Government.

Fire-protection.

22. The jungle fires in Assam have, if anything, been worse this year than usual, owing perhaps to the unusual dryness of the season; and it is all the more praiseworthy for this reason that fire-protection has been so successful in the forests under the direct management of the Forest Department, and this has been especially the case in the Gauháti division, where nearly the whole country in the Kámrúp district and the Khási Hills was burnt as usual all around the forest reserves in charge of Mr. Mein, who deserves credit for having succeeded so well; for without this these most valuable Sâl forests could never recover and produce as fine timber as they ought to do, considering the richness of the soil and a climate so well suited as that of the Kámrúp district. Mr. Mein speaks very highly of the villagers living in the immediate neighbourhood of the reserves, and the assistance rendered by them in fire-protection.

23. Rewards were offered, and other strenuous efforts made, by the Deputy-Commissioner of Kámrúp to prevent these fires outside the Government reserves and plantations, but they were without success in the year under notice. The area protected in the Sidli forest of the Goálpára division, in the Goálpára district, was 18,510 acres, and the headman of Amguri, the only village remaining in this forest, and his people, gave good assistance in its protection.

In the Tezpur division all the Sâl forests in the Darrang district exposed to danger from fires, which had formerly been protected, and the two reserves in the Nowgong district, had fire-lines cut around them, and were successfully preserved, except the Sâl forest at Balipara, which was again set fire to inside the fire-lines, and 40 acres were burned, out of a total area of 600 acres, before the men could get it under. In the Garumari Sâl forest, a fire was lighted in October, but only a few trees were burned.

24. It is kept steadily in view that fire-protection must be continuous to do good; but there is a limit to the principle that interrupted protection is useless, and will do more harm than good, for the accumulation of grass and other combustible matter, which will increase the violence and destructiveness of the fire, holds good only for about three years, after which, in the damp climate of Assam at any rate, the decay of the grass is so rapid as not to allow accumulation; besides which, the improvement of the soil and the more vigorous foliage on the trees very soon diminishes the growth of grass; and, in the same way, the wood and its foliage so formed every year in consequence of fire-protection, is always an advance to get rid of the grass in the Sâl forest altogether, as experience has proved in this Province. Independently of all this, it must not be lost sight of that most of the fires originate in the ignorance and indifference of the people, which every effort on the part of Government to carry out fire-protection tends to remove; so that, as an educational measure alone, this particular branch of forest conservancy has done already much good, although it was introduced only four years ago.

Elephant-hunting in reserve forests.

25. The question if elephant-hunting should be permitted in the reserve forests has been under consideration by the Chief Commissioner, and it was ordered, in Revenue Department Circular No. 9, dated 22nd March, 1878, that, except under special circumstances, it should be permitted. Any necessary conditions or restrictions under which hunting in the forest reserves is to be permitted will in future be settled by the Deputy-Commissioner, in consultation with the Forest Officer, and be inserted, with the sanction of the Chief Commissioner, in the notice of the conditions of sale of the mehals.

Jhúming.

26. The danger of jhúming tribes trespassing remains specially great in the Golághát forest division, and the Assistant-Conservator in charge, for this reason, visited all the villages situated on the Rengmah Hills, adjoining the western boundary of the Nambor reserves, and warned the people against trespass. The same was done by him regarding the Mikir Hill reserve, where a case of trespass had been attempted by the inhabitants of a village four miles off, but was discovered immediately by the forest guards and stopped.

The Mikirs in these hills are getting very near the end of the forests, and will either have to emigrate, or to turn back on to their old jhúms.

27. In the Sâl forests of the Kulsi plantation reserve in the Gauháti forest division creepers were cleared on two square miles, and in the Pantan reserve, in the same division, over an area of three square miles at a total cost of Rs. 356-1-9. Press of other work has not permitted this improvement, so very necessary in the Sâl forests, to be carried out in the Goálpára and Tezpur divisions; but it is hoped that a good beginning will be made in the current year, since there is no more urgent work of improvement than this in the Sâl forests of the Goálpára division, and especially in the Guma reserve.

28. The experiment of sowing Nahor in the Nambor reserve, after clearing the undergrowth of useless scrub only, although very small (about one-third acre), has been most successful, the young trees look perfectly healthy and vigorous, and the ground is completely stocked; all that was necessary to do to these trees in the year under notice was weeding three times at a cost of Rs. 3-8. A similar experiment was made in sowing Ajhar on half an acre, which is equally encouraging. This sowing was made both in the forest, with only the undergrowth cleared, and on a piece of open ground near the Ohgori control station, and up to date the plants in the forests have done better than those in the open. These improvements of the forests should be carried out on a much larger scale, as soon as more funds for such work can be obtained.

Nahor and Ajhar sowing in the Nambor reserve.

29. The Caoutchouc plantation at the Kulsi, in the Gauháti Division, was extended by 11 acres, and 400 young trees, raised from cuttings, were planted on the newly-cleared lines, and where vacancies existed. This plantation was also surveyed and mapped on the scale of twenty inches to the mile, a copy being filed in the Atlas of the Direction Office. The total area under Caoutchouc at the Kulsi is now 86 acres.

Kulsi plantation.

30. An additional area of 20 acres was cleared and prepared for Teak, and the locality surveyed. This area has already been sown very successfully since the end of the financial year, but will not be entered in the area statement of plantations (Form No. 46) appended to this Report, as it more properly belongs to the current year, even though the principal expenditure was incurred during the past year, as shown in the above statement.

31. The growth in the older Teak plantations of 1872-73 and 1873-74 is excellent; they were carefully gone over this year, and had the crooked and weakly trees cut out, and such as had been attacked by the borer were cut back, and have sent up vigorous shoots from the stock. Clearing in these areas is no longer necessary, except on about 6 acres, which are on rather low ground, and the Teak has for this reason not come on so well as on the higher ground. Vacancies in this locality were filled up with Toon and Sisu.

32. The growth of the trees in the Teak plantation of 1874-75 and 1875-76 on the low hill is not so vigorous as on the comparatively level ground of the older plantations. A small experiment of transplanting Sisu in the cold weather succeeded, 135 young trees out of 150 having grown.

33. In the Tezpur division the Charduar Caoutchouc plantation was extended by 143 acres. As hitherto the transplanting of two years' old trees had succeeded best, it was not originally contemplated to make any extension this year; but the 8,000 seedlings in the nursery, which were transplanted in September at distances of two feet apart, grew so fast that experiments were first made of transplanting some of the six months' old seedlings in December and January, which succeeded so well that the general transplanting was carried out in May and up to date there have been no failures.

Charduar plantation.

34 The growth of the trees has, generally speaking, been excellent and most vigorous; but the deer proved even more destructive this year than they had done before, and hundreds of plants were bitten perfectly bare, and large trees 10 to 15 feet in height were bent down or broken down by the deer with their horns, to get to the young leaves at the top. This necessitated the construction of better fences out of plaited bamboo, which up to date have done very well, but will add somewhat to the expense of the plantation,—each fence costs from 2 to 4 annas. Other kinds of fences have also been constructed as experiments, since keeping away the deer seems to be the greatest, and, in fact, the only difficulty remaining.

35. All trees were planted on small mounds raised about four feet, as mentioned in last year's Report, and this is absolutely necessary to secure general success. The season of transplanting is of little or no consequence, as long as healthy young trees with their roots unnjured are used, but a certain amount of light and air is indispensable, so that lines of less width than 40 feet will not answer, and care has always to be taken to keep down the dense undergrowth in the immediate neighbourhood of the young trees.

36. Rubber-seedlings planted in the forks of trees have either grown so little, or made no growth at all, on account of the difficulty of keeping moisture and nourishment in the shape of soil about their roots, that this mode of planting will not be continued beyond a few experimental plants in very favourable trees, and even then the trees will have to be lopped, since without light being freely admitted they will not grow under any circumstances.

37. The nursery was extended by about half an acre, to have room for transplanting. The sowing has been most successful. 34 beds 4 feet in width running east and west were sown at different times from the 18th December, 1877, to 27th March, 1878.

38. The first seed germinated on the 1st of April, and all the remainder by the 22nd of the same month. The number of seedlings alive at present in the nursery from this sowing is 37,234.

39. It remained doubtful last year from what cause the most of the seedlings had died soon after germination; but this year's sowing establishes the fact that shade is absolutely necessary for the young seedlings for some time after the germination takes place. The shade used was a moveable side shade 7 feet high, and consisting of grass tied between split Areca stems, and it was put up vertically along the south edge of the beds. Wherever the hot midday sun got at these beds over the top of this shading no seedlings are alive. Vertical shading is necessary to prevent drip, which is also injurious.

40. No cuttings were made, as the number of seedlings and cuttings in the nursery from former years were sufficient for two years' requirements, and seedlings transplant better, and are hardier than cuttings.

41. The clearing of lines 40 feet wide and 100 feet apart was completed in the Moran Pokri block, and planting has been almost completed in compartments Nos. 1 to 6, as shown in the map of the plantation attached to this Report.

Bamuni Hill plantation.

42. The growth of the Caoutchouc-trees in the small experimental plantation on the Bamuni Hill, near Tezpur, continues very slow, proving, as was anticipated, that no localities except the damp regions along the foot of the hills, or on the lower hills of the main ranges, are adapted for the cultivation of *Ficus elastica*.

Planting of Sâl.

43. The small experiment of planting Sâl was continued, but no particular success has as yet been obtained. Sâl-seed germinated best under a loose covering of grass, but the seedlings are very sensitive when exposed to the free glare of the sun. The same is the case in transplanting seedlings, and many succumbed in consequence of the cutting of the grass in the little plantation. The experiment is being continued.

Shillong plantation.

44. Of the exotic trees experimentally planted in the Shillong plantation, the Walnuts do well, but are liable to have their wood killed down to the root by frost during the first two or three years, after which they become strong enough to withstand the frost. *Pinus maritima* and *Pinus excelsa* and *Cryptomeria japonica* are growing and seem healthy, but not very vigorous, whilst *Abies Smithiana* is very slow. The different species of *Eucalyptus* have suffered more from frost than in previous years, and the greater number even of *Eucalyptus rostrata* have been killed.

45. The number of trees alive in this plantation are the following:—

Juglans regia	90
Quercus serrata	5,000
Eucalyptus rostrata	4,944
Pinus austriaca	100
„ maritima	1,361
„ excelsa	3,100
Abies Smithiana	5,100
Cryptomeria japonica	2,200

46. A different system is being tried, as an experiment, to plant *Eucalyptus* at first in small baskets of bamboo, and afterwards in better prepared holes measuring 4′ × 4′ and 3′ deep, to give them a chance of growing stronger in the first two years, and so withstand the frost better. Planting is done at distances of 15′ × 15′ so as not unduly to increase the cost of the plantation, and *Pinus Kasya* is kept on the ground between the *Eucalyptus* as nurses.

47. The reboisement of the land around the springs from which Shillong obtains its water-supply with indigenous Oaks (*Quercus Griffithii* and *Quercus serrata*) and Khási Pine has been very successful during the year, and the young seedlings look very promising.

48. The quantities of seed sown during the year were four maunds and 30 seers of *Pinus Kasya* and 2½ maunds of *Quercus serrata*.

Makum plantation.

49. The small experimental Teak plantation at Makum was inspected by the Deputy-Conservator in January, 1878. The growth of the trees is healthy, and in some parts even most vigorous; but the borer has been very destructive, and there is no doubt that this insect thrives more and does more damage to the young Teak-trees in the excessively moist climate of the Lakhimpur district than in the drier climate of Kámrúp, and extension would certainly not be advisable. Neither does it look very hopeful either that many of the trees will grow to maturity, if the borer continues as bad as it has done during the last two years. Moreover, the excessive wet seems to be detrimental to the renewed growth from the stocks of the young trees if they are cut back after the borer has attacked them. The growth of the trees that were not injured during the last two years has been fair enough, as will be seen from the present average girth, as compared with that recorded in para. 78 of the Annual Forest Report for 1875-76:—

Average girth, 1877-78.	At one foot above the ground.	At four feet above the ground.
Teak of 1869.	1 foot 10 inches.	1 foot 6 inches.
„ 1871.	1 „ 8 „	1 „ 4 „
„ 1872.	1 „ 2 „	0 „ 11 „

Buildings.

50. The shelter and comfort provided for forest officers in the way of buildings is increased, and improved steadily, which is very necessary, considering the unavoidable exposure on works of this department, and the trying climate of Assam. The forest house at Dhubri has been finished, and another one for the divisional officer in charge of the Golághát division, was commenced at Golághát, and is nearly completed. Smaller buildings, such as inspection huts for forest officers and subordinates, and huts for coolies, have also been increased and repaired, where necessary; so that a very fair amount of shelter is provided in the Goálpára, Gauháti, Tezpur, and Golághát divisions, whilst for the Cachar division a boat has been provided, which will enable the divisional officer to go about with less risk and exposure to the climate.

Yield and working.

System of working the forests.

51. No change was made in the different systems by which timber is worked out from the forests of Assam, as described in paragraph 34 of last Annual Report.

Work by Government Agency.

52. The number of trees felled by the department were as follows :—

Goálpára division	6
Gauháti „	554
Tezpur „	222
Golághát „	575
Total ...	1,357

They are of the undermentioned kinds:—

Sâl	550
Sam	8
Ajhar	788
Gunserai	1
Poma	1
Gomari	1
Gugara	1
Tita Sappa	1
Amari	1
Bandorkanda	1
Karai	2
Serang	1
Jia Poma	1
Total ...	1,357

The conversion into logs was the following:—

	Logs in hand at the commencement of the year.	Logs cut during the year.	Pieces cut during the year.	Total.
Goálpára division...	675	17	4	696
Gauháti „ ...	607	477	...	1,084
Tezpur „ ...	173	238	20	431
Golághát „ ...	15	196	1,348	1,559
Total ...	1,470	928	1,372	3,770

The number of scantlings cut during the year were the following:—

Gauháti division	81
Tezpur „	851
Golághát „	305
Total	1,237

The following timber was brought to depôt:—

	Number of logs.	Number of pieces.	Number of scantlings.	Number of boats.
Goálpára division ...	485	4	...	...
Gauháti „ ...	739	...	46	3
Tezpur „ ...	128	...	837	...
Golághát „ ...	150	27	...	1
Total ...	1,502	31	883	4

Out of the 485 logs brought to depôt in the Goálpára division, 351 logs were transferred from the Gauháti division, and 137 logs and 16 pieces were in transit at the end of the financial year from the Gauháti to the Goálpára division.

Dead Sâl-wood was worked out of the forests and brought to depôt by Government agency in the following divisions:—

	Pieces.
Gauháti division	117
Tezpur „	1,177
Total ...	1,294

The timber sold during the year was the following:—

	Logs.	Pieces.	Scantlings.
Goálpára division... ...	167	...	26
Gauháti „	225	...	5
Tezpur „	140	765	456
Golághát „	110	79	...
Total ...	644	844	487

The following is the timber used by the department or lost:—

	Used by the Department.			Lost.
	Logs.	Pieces.	Scantlings.	Pieces.
Goálpára division.....	10	...	...	2
Gauháti „ -	4	15	175	...
Tezpur „	1	...	335	86
Golághát „	75	...	54	...
Total	90	15	564	88

53. The difficulty of getting boats in the first instance, and the inexperience of the boatmen afterwards, which made them overload the boats so that they could not be got over the shallows at the mouth of the Kulsi River, made the arrival of the timber from the Gauháti division in the Dhubri depôt too late for the season when timber sales are effected in the Goálpára district; and it is feared that, as the Brahmaputra is not safe for timber rafts until the end of September, most of the timber from other divisions higher up the Brahmaputra will have to remain for about nine months in the Dhubri depôt before it can be sold.

54. It has hitherto been the rule of the Forest Department in Assam not to bring any other kind of timber but Sâl into depôt unless indented for; but the increasing scarcity of timber in the Goálpára timber markets has made traders buy other kinds, especially Jarul, or Ajhar, now that Sâl and Sam are beginning to fail, and this has induced the Deputy-Conservator to make an effort to bring these woods from the extensive forests of the Tezpur and Golághát divisions to the Goálpára timber markets, although the profits might be small, as something ought to be done to help the timber traders over their prejudice against everything else but Sâl and Sam, and it is hoped that it may become the means of inducing traders in time to go higher up the Brahmaputra Valley to buy timber, and thus relieve this department of the greater part of the floating work.

55. In the Tezpur division, with the exception of a few Miries, no local labour can be got for timber work, and it was attempted to import Nepalese labour from the

Darjeeling district, but the coolies proved so inferior, probably because all the strong and able men can obtain remunerative work very readily just now so much nearer home on the railway works in the Darjeeling Terai, that the experiment of doing timber work by these men in the Tezpur division has been given up, and such operations will in future be limited in that division to supplying timber for local requirements only, as the profits made are very small, when the time of the divisional officer and subordinates required for looking after it is taken into account.

56. In the Golághát division circumstances are different, and the endeavour to take timber from those forests to the Goálpára timber markets will be continued, the only difficulty being that boatmen from Bengal and Hindustan have a great aversion to leaving the Brahmaputra and going up any of the smaller rivers, such as the Dhansiri; and a sufficient number of boatmen cannot be had at reasonable pay to transport the timber tied to dugouts as far as the Brahmaputra.

57. The timber that will thus be exported will consist only of dhums, or logs 12 feet in length, which are almost exclusively used for boat-building.

58. Planks for bridges of Ajhar measuring 8″ × 4″ and 12 to 14 feet in length are brought to depôt in the Tezpur and Golághát divisions for local requirements.

Work by purchasers.

59. The number of trees sold standing in the reserve forests has been 297, as compared with 523 in 1876-77, and they are, as formerly, almost exclusively used for boats or dugouts prepared in the forests.

Licenses grant in the Cachar division.

60. The number of licenses granted in the Cachar division were the following, as compared with the previous year :—

	1876-77.	1877-78.
(1) Licenses for elephants to drag timber ...	77	197
(2) Licenses for cutting timber, bamboos, canes, and grass	1,511	2,198

Sealtek Toll-station.

61. The undermentioned forest produce passed and paid revenue at Sealtek, in Cachar:—

Logs.			Posts and planks.			Bamboos.		Canes.		Grass.		Charcoal.	
Number.	Cubic contents.	Amount.	Number.	Cubic contents.	Amount.	Number.	Amount.	Number of bundles.	Amount.	Number of rafts.	Amount.	Number of maunds.	Amount.
		Rs. A. P.			Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.
3,293	59,458	8,777 12 5	879	1,214	336 0 5	358,059	447 9 2	19,357	295 0 8	213	532 8 0	218	27 5 0

62. Under Section 20 of the Forest Rules the following places in the Goálpára district were gazetted for the control of timber and boats imported from Bhutan :—

Timber from Bhutan.

Datma, on the Langa River.
Rajadbari, on the Goropila River.

No woodcutters went into Bhutan during the past season, on account of the civil war prevailing in that country.

Timber specimens for the Paris Exhibition.

63. A collection of 78 specimens of wood was forwarded to the Inspector General of Forests for the Paris Exhibition and other purposes.

Financial Results.

Summary of receipts and expenditure.

64. The receipts and expenditure of the year in the different divisions, and by civil officers, are given in the annexed summary (Form No. 49), and show a surplus of Rs. 34,039 for the year.

Transactions of the year.

65. In accordance with the observations contained in the conclusion of paragraph 10 of the Government orders passed on the Annual Forest Report for 1876-77, the following table shows the transactions of the year for the whole Province under the three great heads of "Departmental timber operations," "Other revenue," and "Formation, protection, and improvement of the forests," after the circumstances of each forest division separately had been carefully considered,

They are also in accordance with the suggestions contained in the Inspector-General's letter No. 124, dated 22nd August, 1877, on this subject:—

	Receipts. Rs.	Charges. Rs.
I.—Departmental timber operations	15,877	25,037
II.—Other revenue	1,18,448	[illegible]46
III.—Formation, protection, and improvement of the forests		49,403
Total ...	1,34,325	1,00,286

These figures represent the totals of receipts and charges for the whole province, and were obtained by dividing the receipts in the Direction Office according to the revenue heads, and the expenditure of the Direction Office equally between the three heads, and then adding up the totals of the different divisions; regarding the latter, further details will be given in Chapters II. and III. of this Report.

66. The difference in the value of stock at the commencement and close of the year, for the whole department, was Rs. 12,104 in favour of the year.

Comparison of revenue with former year.

67. The forest receipts of the year under notice, as compared with those of the previous year, are the following:—

Receipts, 1876-77. Rs.	Receipts, 1877-78. Rs.	Increase. Rs.
81,568	1,34,325	52,757

The increase is attributable to an increase in all the forest divisions except the Direction Office and Goálpára. The decrease in the former is the consequence of less forest produce having been removed direct from the open forests by public departments, which is adjusted in the Direction Office, and the decrease in the Goálpára division is due to almost all dead Sâl wood having now been worked out of the forests, and the timber cut not having come sufficiently early into the sale depôts to be disposed of during the year under notice.

68. The revenue realized by civil officers from the open forests has more than doubled, in consequence of the better system introduced, and the more careful collecting of forest dues as compared with former years.

Comparison of expenditure with former year.

69. The expenditure during the year under notice, as compared with that of the previous year, is shown in detail in the following table :—

Budget Heads.	1876-77.	1877-78.	Increase.	Decrease.
A.—CONSERVANCY AND WORKS.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
I. Timber and other produce removed from the forests by Government agency..	3,687 1 6	7,598 3 1	3,911 1 7	.....
II. Timber and other produce removed from the forests by consumers or purchasers.	239 13 8	2,675 3 1	2,435 5 5	.....
III. Confiscated drift and waif-wood	.....	14 6 0	14 6 0	.....
IV. Revenue from forests not managed by Government	.....	.....	.....	.....
V. Rent of leased forests and payments to shareholders in forests managed by Government.	50 0 0	50 0 0	.....	.....
VI. Live and dead stock	18,666 9 4	12,256 0 2	.....	6,410 9 2
VII. Communications and buildings.....	6,941 8 3	7,870 8 3	929 0 0	.....
VIII. Demarcation, improvement, and extension of forests	11,897 8 4	16,192 7 5	4,294 15 1	.....
IX. Miscellaneous.....	521 15 4	2,297 2 9	1,775 3 5	.....
Total, A.—Conservancy and Works	42,004 8 5	48,953 14 9	13,359 15 6	6,410 9 2
B.—ESTABLISHMENT.				
I. Salaries	41,771 1 10	44,263 7 11	2,492 6 1	.....
II. Travelling allowance.....	5,116 14 6	4,977 12 6	.....	139 2 0
III. Contingencies	1,027 8 0	2,091 5 6	1,064 2 6	.....
Total, B.—Establishment.....	47,915 3 4	51,332 9 11	3,556 8 7	139 2 0
Grand Total of Expenditure.....	89,919 11 9	1,00,286 8 8	16,916 8 1	6,549 11 2

The increase under "I. Timber and other produce removed from the forests by Government agency" is pretty equally divided between the Gauháti, Golághát, and Goálpára divisions, in all of which these operations are beyond all doubt remunerative, whilst there has been a decreased expenditure under this head in the Tezpur division, because local labour is not to be had, and imported labour proved a failure, so that, as already stated, timber works in the latter division will in future be limited to local requirements.

The increased expenditure under "II. Timber and other produce removed from the forests by consumers or purchasers" occurred exclusively under civil officers, on account of the payment of 10 per cent. to the mouzahdars on the forest collections, as sanctioned by the Supreme Government.

The increase under "III." is trifling, and needs no explanation. Under "VI. (*a*) Purchase of live stock" there was no expenditure during the year, hence the decrease as exhibited in the above table, whilst under "(*b*) Feed and keep of cattle" there has been an increase on account of the greater number of elephants employed and purchased in the preceding year.

The increase under "VI. (*c*)" is principally attributable to the purchase of a large number of marking-hammers for the use of mouzahdars in the open forests under District Officers, and the purchase of a large boat for the Cachar forest division, where the forests are hardly accessible except by boat, and where the want of it had caused much inconvenience and unnecessary exposure.

The increased expenditure under "VII. Communications and buildings" occurred in the Gauháti, Tezpur, and Golághát divisions, and has to be attributed to an improvement of the roads and buildings, facilitating quicker travelling in the forests, and providing better shelter for the establishments.

Under "VIII. Demarcation, improvement, and extension of forests" the increase under "(*a*) Demarcation" has mainly occurred in the Goálpára and Cachar divisions, where this work was indispensably necessary, but it will be very small hereafter, when the proper demarcation has once been thoroughly carried out and completed. The increase in the Gauháti, Tezpur, and Golághát divisions has been but small, but will also decrease as soon as all the improved demarcation of the boundaries, now being carried out, is completed.

The expenditure under "(*c*) Surveys and working plans" has naturally increased in all the divisions slightly, and may still increase somewhat hereafter, as there is a great deal of very necessary work to be done before the forests can be considered at all organized or can be worked according to a regular preconceived plan.

The increase under "(*d*) Plantations" is due to the extension of the experimental Teak plantation at the Kulsi, in the Gauháti division, which work was carried out in accordance with the Government orders passed on the Assam Forest Report for 1875-76.

The decrease under "(*f*) Other works" is chiefly brought about by the somewhat different classification of expenditure at present, and a decrease in the work of reboisement at Shillong, in the Khási Hills.

The increase under "IX. Miscellaneous" is small and accidental, and therefore requires no explanation.

Under "B" the increase on account of "I. Salaries" is to be attributed to the promotion of four officers during the year, and Mr. Condon's return from leave. The decrease under "II. Travelling allowance" is small, and due to Mr. Shakespear's absence on famine work, and no travelling allowance having been drawn by the officer who acted for him, whilst the increase under "Contingencies" is due to the purchase of office furniture and other necessaries, the purchase of which has been indispensable, as the forest offices in Assam are comparatively new.

Receipts and charges in the different divisions.

70. The distribution of receipts and expenditure in the different divisions is shown in the following table:—

Name of division.	Receipts.	Expenditure.	Surplus.	Deficit.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Direction	4,019 7 9	15,774 12 6	.....	11,755 4 9
Gauháti division	8,241 8 9	19,591 6 7	.....	11,349 13 10
Tezpur "	4,314 9 7	18,571 2 11	.....	14,256 9 4
Golaghát "	2,133 4 6	9 762 15 2	.....	7,629 10 8
Goálpára "	9,453 0 4	16 149 11 0	.....	6,696 10 8
Cachar "	13,230 13 8	8 915 10 1	4,315 3 7	.....
Civil officers	82,832 14 8	11,520 14 5	81,312 0 3	.....
Total.....	1,34,325 11 3	1,00,286 8 8	85,627 3 10	51,688 1 3

The chief forest revenue was realized by civil officers as heretofore, since local requirements are almost exclusively obtained from the unreserved forests in charge of civil officers, because they are, generally speaking, more accessible than the reserves in charge of forest officers, which latter have remained superior, from the very fact of being situated at greater distance from the inhabited parts of the country, and the fact that the timber is more difficult to bring out from them. Yet there was, as already stated, a slight increase of revenue collected by forest officers, and, if the increase in the value of stock is taken into account, the deficit, as shown under "Direction" and the four divisions in the above table, is reduced to Rs. 39,484.

71. The receipts and charges of the Direction Office, the reserves managed by forest officers, and the unreserved forests in charge of civil officers stand as follows:—

	Receipts. Rs.	Charges. Rs.
Direction office	4,019	15,775
Reserves in charge of forest officers	37,473	72,991
Unreserved forests in charge of civil officers	92,833	11,521
Total ...	1,34,325	1,00,286

This shows an excess expenditure incurred on the management of the reserves in 1877-78 of Rs. 43,355, or Rs. 21-14 per square mile, or 0·55 annas per acre, if two-thirds of the outlay on account of direction is included.

If the cost of capital expenditure on plantations, and the increase in the value of stock are deducted, the excess expenditure is reduced to Rs. 12-4 per square mile, or 0·3 annas per acre.

72. It would of course be more satisfactory if there was no excess expenditure at all in the management of the reserves, and if they were self-supporting, or, even better, if they showed a surplus; and to no one would this be more gratifying than to the forest officers, yet it would not be wise to delay the protection and organization of the Assam forests on this account, or we no doubt should find ourselves soon overtaken by the daily increasing demand for forest produce, and have to spend a great deal more on reboisement and plantations than we spend now on protection of the natural forest taken charge of. There is great room for improvement in all the forests of Assam, but this, excepting fire-protection, is not such a pressing matter, and extensive measures of this kind may very well be made dependent on the increase of revenue from these estates. Thus, whilst great efforts are being made to limit expenditure to what is urgently required, the revenue from forest produce is being collected most carefully, so that the State receives the full value of its property, and the development of the resources of the forests receives the closest attention, as will be evident from the steady increase in the forest receipts since forest conservancy was started in Assam.

CHAPTER II.

RESERVED FORESTS.

GOÁLPÁRA DIVISION.

Area and Boundaries.

73. The area of reserved forests in this division at the commencement of the year was 348 square miles, to which the following newly-gazetted reserved forests were added during the year :—

The Sidli forest reserve	68·37	square miles
An addition to the second or western part of the Cherang Duar reserve	4·	„ „
Total	72·37	„ „

This brings the total forest area comprising the Goálpára forest division up to 420·39 square miles.

74. Forests which it is proposed to declare reserves, consisting of 1,730 acres of Sâl and 9,180 acres of Sisu and Khair, were carefully inspected and demarcated by the divisional officer, who submitted the necessary data for the purpose.

Demarcation.

75. The improved demarcation with numbered boundary-posts and mounds at distances of 100 to 300 yards was carried out in the following forests :—

(*a.*) The southern and western boundary of the Guma Duar reserve, where no natural boundary existed.

(*b.*) The southern boundary of the Ripu Duar reserve from the Pekua Nadi, in the west, to the Gungea river, in the east.

(*c.*) The eastern boundary of the first or eastern part of the Cherang Duar reserve from the Champamati river, in the west, to the Bara Bhur Nadi, in the east.

(*d.*) The southern boundary of the second or western part of the Chirang Duar reserve from the Peleama Nadi, to the Hail River.

76. Whilst the southern boundary of the Guma Duar reserve was re-surveyed and demarcated, it was discovered that the zemindars of Partabjuar had encroached by about 2 square miles on this reserve, according to the old revenue survey maps; and further investigation brought to light that the demarcation of this wrong boundary was carried out by the zemindars in 1874-75, but no criminal intention was proved. No timber had been felled on this area from the time of demarcation until the year under notice, and both land and timber felled were recovered.

77. The departure on leave to Europe of the Assistant-Conservator in charge of the Goálpára forests in 1874, and no other officer being available to take his place, and the insufficiency of the subordinate forest establishments ever since, as well as the press of survey and demarcation work in the Sidli Duar, had prevented the re-survey of the boundaries of the Guma Duar reserves until last year, hence the late discovery of this encroachment.

Valuation Surveys.

78. Valuation surveys were carried out in the southern half of the Guma Duar reserve, and extended over an area of 298·6 acres, and a length of line measuring 19½ miles; they were made along lines cut one mile apart, dividing the forest into compartments.

A statement exhibiting the result of these valuation surveys in detail, as far as they have gone, was submitted by Mr. Fisher, and will be attached to next Annual Report after this work has been completed for the whole of the Guma Duar reserve.

The above statement shows the number of Sâl-trees, exclusive of saplings, under one cubit on a hundred acres to be as follows :—

Second-class trees	from 1 to 2 cubits	...	...	...	3,877
Third-class „	from 2 to 3 „	...	...	...	595
Fourth-class „	from 3 to 4 „	...	—	...	46
			Total	...	4,518

79. None but Sâl-trees were counted, since Chelani trees are very scarce, and other good kinds of trees are also but seldom met with. The forest is essentially a pure Sâl forest, no grass lands intervening, as in the Sidli Duar reserve, and the lower hill forest is limited to insignificant narrow strips on the banks of the jhoras only.

The above figures show that, independently of the whole area being stocked, and no grass lands of any extent intervening, the growing material is more in the Guma Duar than in the Sidli forest reserve.

Examination of concentric rings.

80. The rate of growth of Sâl in the Sidli forest reserve Mr. Fisher further investigated by the counting of concentric rings in 17 Sâl-trees, as exhibited in a tabular statement attached to this Report, Appendix IV.

Protection and Improvement.

Permanent Establishment.

81. Proposals for the increase of the protective establishment in the Goálpára division were submitted, and sanctioned by the Government of India, and it is now as follows :—

One forest-ranger.
One forester.
Fourteen forest guards.

This, with an addition of temporary establishments for fire-protection, timber, and survey work, will suffice for the present, until timber operations are extended.

Fire-protection.

82. Fire-protection in the Goálpára division is most urgently required, and must be extended to the Guma Duar reserve in the coming season, which, on account of the divisional officer's illness, and other exceptional circumstances, it has not been possible to do during the year under notice. In the Sidli forest reserve 18,510 acres were protected, out of a total area of 32,334 acres, the protection of which had been attempted. This is not much, but it must be remembered that it is only the second year, and that the inhabitants of the district are still very indifferent as regards the lighting of fires. The village of Amguri, which is the only one remaining in the Sidli forest, gave every assistance in this work, which is gratifying, and patient perseverance in teaching the inhabitants is the best way of obtaining this desirable end of fire-protection, since there is no scarcity of grazing ground, or any other particular reason which might induce the people to set fire to the jungle generally, or to the grass around their villages and on their fields, from interested motives, beyond that, it is easier to let it burn than to put it out, and no doubt many, and especially the younger portion, of the population are fond of seeing a good blaze without weighing the consequences.

83. The headman of Amguri village arrested two traders from Bilasipara, after they had carelessly set fire to the forest. They were fined.

84. In addition to the permanent establishment, ten temporary forest guards were employed on fire-protection during November, twelve in December, eighteen in January and February, and sixteen in March and April.

85. The expenditure on fire-protection was divided as follows:—

	1877-78. Rs. A. P.	1878-79. Rs. A
Cutting and burning of lines	327 14 9	192 8
Pay of temporary fire-guards and other establishments ...	642 2 9	204 0
Rewards to villagers	84 0 0	.....
Total ...	1,054 1 6	396 8

The extension of fire-protection will be carried out as the survey and division into compartments of the different reserves is completed.

Other improvements.

86. The growth of Sâl in the Guma Duar reserve is very good; but the cutting of creepers is badly wanted, they are worse in this reserve than in any other Sâl forest in the Province. Beyond this, no improvements are contemplated for the present, or warranted, because the revenue from these forests must necessarily remain small for years to come, since, although they are extremely valuable, yet they were so completely gutted of all mature timber, and, indeed, also of a great deal that was not mature, before they were made over to the Forest Department, that they will require many years care in the first instance before felling operations on a large scale dare be re-commenced.

Buildings.

87. The bungalow for the divisional officer at Dhubri was completed and fenced in, and a temporary building for office accommodation erected in the same compound.

Yield and Working.

Timber trade.

88. The prejudice against all other kinds of wood but Sâl, Sám, and perhaps Tita Sápa, are very great with the timber traders, who come to the Goálpára district to make their purchases; and, as the above kinds of trees have been almost completely worked out, the chief endeavours of this department should be for the present to introduce other good kinds of wood into the timber trade, and this will be carefully attended to.

Works by Government agency.

89. As the Mech duffadurs, or woodcutters, have worked timber out of the forests in the Goálpára district from time immemorial on their own account, endeavours were made to induce these men to work out timber by contract for this department; but they show great reluctance, and only one has been induced to commence this work during the year under notice, and it has yet to be seen if he considers the profits he can make sufficient to continue the work. Great difficulty is also experienced to induce Bengali and Hindustani boatmen to fetch timber from other forest divisions higher up the Brahmaputra; and, more than this, it is almost impossible to persuade them to take their boats up any of the smaller rivers.

The timber in hand was—

	Logs.	Pieces.
At the commencement of the year	...	28
Received during the year from the forests of the Goálpára division	134	4
„ „ „ Gauháti „	351	...
Total ...	485	32
Sold during the year	167	26
Used by the department	10	...
Used for the Paris Exhibition	...	4
Lost	...	2
Total ...	177	32
Balance remaining in hand at the close of the year ...	308	

The difference in the value of timber at the commencement and close of the year inclusive of timber transferred from the Gauháti division, was Rs. 6,234 in favour of the year under notice.

Work by purchasers.

90. The number of trees sold standing in the forest was 20, as compared with 113 sold the previous year.

91. The 4,300 pieces of deal Sâl wood worked out by duffadars, or woodcutters, on their own account, and remaining in the Kukrajhar depôt at the commencement of the year under notice, were all sold, and the Government revenue, amounting to Rs. 5,578, was collected on this timber.

92. The amount outstanding on account of revenue at the close of the year was Rs. 200-8.

93. Twenty-one dugouts were seized, on account of having been cut in excess of a license granted for the purpose.

Timber specimens.

94. The number of timber specimens supplied from the Goálpára division for the Paris Exhibition was 15.

Land for timber-depôts.

95. The decision of the Deputy-Commissioner, awarding ordinary waste land rates for the land taken up by this department for timber depôts in the Goálpára district, as described in Appendix IV. of last Annual Forest Report, was appealed against to a higher court in three cases, and compensation claimed on account of loss of toll-jat, amounting in the aggregate to about six lakhs. The case was subsequently compromised, and separate agreements entered into about each depôt, part of the land having been given up. A small portion of the Dhubri depôt was given up for the building of a temporary church, on the condition that it should be returned to this department, when no longer required.

96. The re-survey of the altered boundaries of the depôts has not been practicable on account of unusually high floods, so that a description of them must be deferred until next Annual Report.

Financial Results.

97. The receipts and charges in the Goálpára forest division during the year under notice, as compared with the previous year, were as follows:—

		1876-77. Rs.	1877-78. Rs.
Receipts		14,363	9,553
Charges	A	8,290	8,493
	B	7,846	7,656
Total charges		16,136	16,149
Deficit		1,773	6,596

The difference in the value of stock at the commencement and close of the year was Rs. 6,691 in favour of the year under notice. The value of timber transferred from the Gauháti to the Goálpára division during the year was Rs. 6,749.

The following table exhibits the transactions of the year in the Goálpára forest division:—

	Receipts.		Charges.	
		Rs.		Rs.
I. Departmental timber operations.	I. and III.	3,829	A I., III., half of VI., and one quarter of B.	4,730
II. Other revenue	II., IV., and V	5,724	A II., IV., V., IX., one quarter of VI. and B.	2,525
III. Formation, protection, and improvement of the forests.	.....	.....	A VII., VIII., and quarter of VI., and half of B.	8,894
	Total ...	9,553		16,149

Half of the cost of the permanent establishment charges have been entered under formation, protection, and improvements of the forests, since the working and yield of the forests in this division are as yet very limited.

Gauháti Division.

Area and Boundaries.

98. No addition was made during the year under notice to the forest reserves in this division, and the Kholahat and Deboka reserves, area 3·81 square miles, were transferred from this to the Tezpur forest division, reducing the area to 48·55 square miles.

99. Considerable areas of valuable Sâl forests along the Khási Hill and Kámrúp boundary were inspected in detail by the divisional forest officer, with a view of having them declared reserves; they are in the immediate neighbourhood of the present reserves, and will be a very compact charge with them.

Demarcation.

100. The improved demarcation, with numbered posts and mounds of the prescribed size, was completed in the Barduar reserve, after a re-survey of the boundary. The same was done in the Jara Sâl forset and the Kulsi plantation reserve, and all the old boundary-posts and mounds were repaired.

Valuation surveys.

101. The valuation surveys in the Barduar reserve were continued; but, on account of a very late commencement, and the difficult, broken, and hilly ground, the progress has not been very much even this year; but it is hoped that this work will be completed for the Barduar reserve in the coming season.

As far as these surveys have gone, they show the following number of trees above one cubit, of Sâl and Makria (*Schima mollis*), on a hundred acres, if the grass land is excluded:—

Barduar Reserve.

	Sâl.	Makria.	Total.
Second-class trees, from 1 to 2 cubits	1,610	16	1,626
Third-class „ „ 2 „ 3 „	900	27	927
Fourth-class „ „ 3 „ 4 „	200	20	220
Fifth-class „ „ 4 „ 5 „	10	7	17
Total	2,720	70	2,790

First addition to the Barduar Reserve.

	Sâl.
Second-class trees, from 1 to 2 cubits.....	2,657
Third-class „ „ 2 „ 3 „	337
Fourth-class „ „ 3 „ 4 „	66
Fifth-class „ „ 4 „ 5 „	4
Total	3,064

If the grass lands are included in this calculation, the number of trees above one cubit on a hundred acres is as follows:—

Barduar Reserve.

	Sâl.	Makria.	Total.
Second-class trees, from 1 to 2 cubits	1,450	14	1,464
Third-class „ „ 2 „ 3 „	800	24	824
Fourth-class „ „ 3 „ 4 „	180	18	198
Fifth-class „ „ 4 „ 5 „	10	6	16
Total	2,440	62	2,502

First addition to the Barduar Reserve.

	Sâl.
Second-class trees, from 1 to 2 cubits.....	1,813
Third-class „ „ 2 „ 3 „	230
Fourth-class „ „ 3 „ 4 „	45
Fifth-class „ „ 4 „ 5 „	3
Total	2,091

Tabular statements exhibiting the results of the above valuation surveys in detail were submitted by Mr. Mein, and will be attached to next Annual Report, after this work has been completed for the Barduar reserves. The saplings under one cubit predominate sufficiently to ensure the whole area being completely stocked with Sâl.

A map on the scale of four inches to the mile, showing the direction of the lines along which valuation surveys were made, and the position and number of every boundary-post is under preparation.

Protection and improvement.

Permanent establishment.

102. The permanently sanctioned protective establishment for the Gauhâti forest division was reduced by a forest-ranger and two forest guards, on account of the transfer of the Kholahat and Deboka reserves, in the Nowgong district, to the Tezpur forest division.

Fire-protection.

103. All the forests in the Gauhâti forest division are Sâl forests, and great vigilance is therefore necessary to keep the fires out. This has been done most successfully during the year under notice, and whilst in 1876-77 the timely rain was of great use in carrying out fire-protection in these forests, in the year under notice the success is due entirely to the exertions of the divisional officer and his subordinates, inasmuch as all the country around was burned completely; and only in one instance, in the Matiakhar reserve between Umthama and Damar Hill, the fire got across the fire-line into the forest after it had already been put out once, but the area burned was not more than about 60 acres, as compared with the area of over 48 square miles successfully protected.

The total expenditure on this work during the year has been Rs. 1,656-8-6, or Rs. 34-2-4 per square mile.

This was divided as follows :—

	Rs.	As.	P.
Cutting and burning of fire-lines	917	8	6
Pay of fire-guards	714	0	0
Rewards to villagers	25	0	0
Total	1,656	8	6

Cutting of creepers.

104. The cutting of creepers was continued systematically in the Sâl forests of the Kulsi plantation reserve, where two square miles were gone over, and the same was done on three square miles in the Pantan reserve, at a total cost of Rs. 356-1-9.

Roads and bridges.

105. A bridle-road was opened out in the Pantan reserve to the villages of Lamkhar and Borobokra, and substantial bridges out of Sâl wood put up. A bridle-path was also opened out in the Kulsi plantation, the total expenditure on which work in the Gauháti division was Rs. 232 8-6 during the year under notice.

Caoutchouc plantation.

106. The Caoutchouc plantation at the Kulsi was extended by eleven acres, bringing up the total in the Gauháti division to eighty-six acres, and completing the area selected for this experiment.

The countings made at the end of the season gave the following results :—

Total number of planting spots examined	1,692
Number of plants alive.....	1,579
Number of failures	113
Percentage of plants alive ... 93 Percentage of failures ... 7 }	100

To fill up the vacancies, 600 young trees have been raised from cuttings, and a fresh experiment to raise plants from seed has also been more successful than in former years, the seedlings are as yet too small to be counted. In the beginning of the cold weather, the deer take up their quarters regularly in this little plantation, and it has been found necessary to surround each plant by a better and higher fence of split bamboo than was done hitherto, and these have been so far successful, but increase the cost of the plantation somewhat.

The expenditure on this plantation during 1877-78 has been Rs. 686-8.

In addition to this, Rs. 88-1-9 were spent on collecting Rubber-seed for the Tezpur forest division.

This plantation was surveyed during the year, and a map on the scale of twenty inches to the mile prepared, a copy of which is filed in the Atlas of the Direction Office.

Timber plantation.

107. An area of twenty acres was cleared and got ready for the sowing of Teak, mixed with Poma and Nahor, it is situated north-west of the Teak plantation of 1875-76, and consists of two low hills, with adjacent level land. As the seed was not sown until the current year, the area has not been brought on the register of plantations for 1877-78, but will be entered on that for 1878-79. The expenditure on this extension of Teak-planting during the year under notice was Rs. 433-4-3.

Teak plantations of 1872-73 *and* 1873-74, *area* 33 *acres.*—These plantations are fully stocked, and the growth of the trees is most vigorous; they were carefully gone over, and crooked and weakly trees cut out, and such of the trees as had been attacked by the borer were cut back to within two or three inches of the ground. Nearly all of the latter have sent up several strong shoots, of which the most vigorous has been left standing, whilst the weaker ones were removed. No clearing beyond the cutting of creepers was carried on, except on an area of about six acres of low ground, where the Teak-trees have not done so well as on the higher land. The expenditure on these plantations was Rs. 215-1-3.

Teak of 1874-75, *area* 20 *acres.*—This plantation was thinned out like the one last mentioned, and some clearing was necessary, as the growth of the Teak-trees has not been as vigorous on the slopes of the hills as on the more level ground of the older plantations. The vacancies were filled up with Poma and Ajhar. The area is reported to be completely stocked. The expenditure on this plantation was Rs. 228-12-3.

Teak of 1875-76, *area* 20 *acres.*—This plantation is fully stocked, but the growth in the greater part of it is not so vigorous as in the older plantations, and considerable clearing had still to be carried on during the rains; the expenditure, consequently, has been high, as compared with that on the other plantations, it was Rs. 696-10.

108. *Sisu plantation, area* 20 *acres.*—This cannot be said to be completely stocked, since the vacancies caused by floods whilst the trees were very young have not been all filled up, because it was found necessary to use older trees for transplanting to withstand the floods in future; it is intended to fill up all vacancies in the current year. An experiment was tried in the cold season, and out of 150 trees transplanted 135 have succeeded. The plantation was cleared from undergrowth and creepers during the year, and the expenditure was Rs. 75-11, and Rs. 21-1 for nursery work.

The whole expenditure on the Kulsi plantation during the year was as follows :—

	Rs.	As.	P.
Caoutchouc plantation	686	8	0
Timber „	1,670	7	9
Temporary establishment	143	0	0
Total	2,499	15	9
Add cost of Rubber-seed sent to the Tezpur division	88	1	9
Total, as per annual summary	2,588	1	6

109. The rainfall at the Kulsi plantation for the last three years is given in the following table :—

	1875-76.	1876-77.	1877-78.
April	3·99	2·49	4·53
May	5·26	10·06	10·59
June	24·51	19·82	16·21
July	13·81	12·61	15·30
August	16·13	12·53	6·21
September	5·09	8·93	7·82
October	2·27	4·75	3·06
November	.....	·45	.....
December	·19	.....	·89
January	·05	1·20	.....
February	·10	·57	1·12
March	·62	3·74	1·56
Total	72·02	77·15	61·29

Yield and working.

Work by Government agency.

110. The number of Sâl-trees felled in the Gauháti forest division was 427, all of which came from the Pantan reserve, and are intended for sale in the Kukurmara and Dhubri timber-depôts. In the Ranee unreserved forests, 119 Sâl-trees were again felled for sale in the Gauháti depôt. Besides this, eight Sam trees were felled for boats or dugouts, which the department is much in want of, three of which came from the Pantan and Matiakhar reserves, and five from the Ranee unreserved forests.

The timber in hand was—

	Logs.	Pieces.	Boats.
At the commencement of the year	283	296	...
Received during the year	739	163	3
Total	1,022	459	3
Sold during the year	225	5	...
Used by the department	4	190	...
Transferred to the Goálpára division	351	...	...
In transit at the end of the year to the Goálpára division	137	16	...
Total	717	211	...
Balance remaining on hand at the close of the year	305	248	3

The difference in the value of timber at the commencement and close of the year is in favour of the year under notice by Rs. 924.

Only small quantities of timber will in future be kept in the depôts of the Gauháti forest division, and all the rest will be sent to the general sale-depôt established at Dhubri, in the Goálpára division.

Work by purchasers.

111. The trees sold standing in the forest to purchasers, who remove them, was 238, as compared with 400 sold in the previous year.

The amount outstanding on account of revenue at the close of the year was Rs. 1,158-5-4.

Timber specimens.

112. The number of timber specimens supplied from the Gauháti division for the Paris Exhibition was five.

Timber-depôts.

113. A new timber-depôt was established at Nagorbera, at the junction of the Kulsi river with the Brahmaputra. The depôt was surveyed and mapped, it measures 8 acres 2 roods 18½ poles.

Financial Results.

114. The receipts and charges in the Gauháti forest division during the year under notice, as compared with the previous year, were as follows:—

		1876-77. Rs.	1877-78. Rs.
Receipts		2,983	8,241
Charges	A	8,738	12,331
	B	6,618	7,260
Total charges		15,356	19,591
Deficit		12,373	11,350

The difference in the value of stock at the commencement and close of the year was Rs. 3,610 in favour of the year. The value of timber transferred to the Goálpára division during the year was Rs. 6,749.

The following table exhibits the transactions of the year in the Gauháti forest division:—

	Receipts.		Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III.	5,607	A I., III., half of VI., and one quarter of B.	5,738
II.—Other revenue	II., IV., and V.	2,634	A II., IV., V., IX., one quarter of VI., and B.	3,022
III.—Formation, protection, and improvement of the forests.		....	A VII., VIII., one quarter of VI., and half of B.	10,831
		8,241		19,591

In this division also, timber work and the collecting of revenue are as yet so small that not more than half the establishment charges can be fairly debited against them, whilst formation, protection, and improvement of the forests demands fully half the time and attention of establishments in general.

Tezpur Division.

Area and Boundaries.

115. The area of the reserved forest in this division was increased by 3·81 square miles, the extent of the Kholahat and Deboka reserves transferred from the Gauháti division, and which now constitute the Nowgong sub-division. Another small Sâl forest in the Diju Valley, which was surveyed and demarcated with a view to have it declared a forest reserve, will also form part of this sub-division.

The Sagunbai forest, adjoining the present Khaling Duar reserve, was also surveyed and demarcated for declaration as a reserved forest.

Privileges granted.

116. The area over which the Akhas have been granted the privilege of fishing and grazing their cattle in the Nowduar reserve by the Chief Commissioner, as alluded to in the register of reserved forests of last Annual Report (Appendix I.), has been confined to a tract the boundaries of which are given below:—

North.—The line fixed by the British Boundary Commissioners between the Akha Hills and British territory from pillar No. 136 to pillar 143.

East.—The Khari Dikrai River, from its exit from the Akha Hills to its junction with the Bhairabi river.

South.—The Bhairabi river from its junction with the Khari Dikrai river to its junction with the Dinapur Nadi.

West.—The Dinapur Nadi from its junction with the Bhairabi river to its exit from the Akha Hills.

117. The improved demarcation of the southern boundary of the Khaling Duar reserve with numbered boundary-posts and mounds of the prescribed size from the Nonai river, in the west, to the Bhola Nadi, in the east, was completed.

Demarcation.

The making of the road along the southern boundary of the Charduar Rubber plantation reserve has been continued, and about 2½ miles completed, except bridges. The southern boundary of the Balipara reserve was gone over, and the portion running through forest widened out to 20 feet, and the remainder, lying across grass land and mixed plain forests, was cleared for a fire-line. The Rubber-trees planted on the boundary-mounds in the latter portion have done well, whilst of those in the forest some have grown but very little, and others have died for want of sufficient air and light; the latter were replaced by new trees.

The Kholahat reserve has been demarcated with posts and mounds of the prescribed size, and the same work was commenced in the Deboka reserve.

Protection and Improvement.

118. The increased permanent protective establishment sanctioned by the Government of India for the Tezpur forest division is the following:—

Permanent establishment.

1 forest-ranger.
2 foresters.
14 forest-guards.

The establishment transferred from the Gauháti division is—

1 forest-ranger.
2 forest-guards.

This will permit the senior forest-ranger being mainly employed at the Charduar Caoutchouc plantation, which is the chief work in this division, and leaves the senior forester available for the supervision of timber work and the general protection of the reserves.

119. The Sâl forests in the Tezpur division were so far successfully protected against fire, that only 40 out of 600 acres were burned in Block A of the Balipara reserve, which fire was again lighted, like the one last year, by travellers from the hills; but nothing could be proved, as is the case with most of these fires. The establishment, with the workmen brought from the Rubber plantation, managed to get it under after great exertions, and so saved the remainder of the forest. A fire was also lighted in the Garumari reserve, but this was early in the season, when everything was still wet, and so did little or no damage. Both the Kholahat and Deboka Sâl forests, in the Nowgong district, were successfully protected against fire.

Fire-protection.

Fire-strips are now generally opened to a width of 200 feet, by cutting the grass along the two sides of the strip and throwing it towards the centre, and then burning the strip as soon as it is sufficiently dry,—this is cheaper and more economical than cutting the whole strip, and yet quite as effective.

120. The small experiment in Sâl-planting was continued with seedlings fetched out of the forest; and, whilst the largest of them all withered at first and shot up again from the roots, the small ones looked well for a short time, and then succumbed altogether.

Planting of Sâl.

A small quantity of seed was also sown, half under a cover of loose grass and the other half without cover, the latter did not germinate at all, and the former germinated freely, but the most of the young seedlings withered soon after, so that only about a hundred plants were raised altogether, and the growth of them is exceedingly slow. The clearing of the young trees planted in former years also caused many of the plants to be burned up by the sun, which shows that young Sâl seedlings require plenty of shade, and it is believed also dry soil, since many of them are said to have suffered from the water resting sometimes on the land. The experiment is being continued on a small scale. The expenditure during the year on this experiment has been Rs. 85-1-9.

121. All the huts for the subordinates and coolies were put into good repair, and six more added, to provide better shelter for the elephant establishments and coolies on timber works.

Buildings.

122. The Caoutchouc plantation in the Charduar has been extended by 143 acres. This had not been intended, as hitherto two years' old plants had transplanted best, and the seedlings in the nursery were all of last year. The latter, 8,000 in number, were transplanted in September at distances of 2 feet apart, of which only 30 died, and they grew so fast that there was not sufficient space in the nursery to hold them all; so in December and January 40 trees were planted out in the plantation, of which only 2 died, and the general transplanting was then decided on, and carried out in May. It seems that this success is attributable to the superior stamp of plants now raised, and, as smaller trees are less injured in transplanting, and altogether the work is less expensive whilst the trees are young, they will not be kept two years in the nursery in future, if sufficient funds are available for the necessary extensions, and labour can be procured,—the latter becomes annually more difficult, on account of the rapid extension of tea cultivation in the neighbourhood of the Rubber plantation, and no other imported labourers than Cacharies from the Mangaldai sub-division are suitable for this particular work.

Charduar Caoutchouc plantation.

123. The transplanting is now invariably done on small mounds raised about 4 feet, and, as long as good strong seedlings are available, it can be done all the year round if ordinary care is bestowed on this work,—but, naturally, damp cloudy weather is more favourable than bright sunny days. There remains no doubt at present as to what is required to make the Rubber-trees grow, and this may be summed up in the few words, air, light, good drainage about the roots, and as much moisture in the atmosphere as is obtainable.

The last, of course, is nowhere so great as at the foot of mountains like the Charduar, and this state is artificially maintained to the highest degree by only clearing lines through the forest at a hundred feet apart, and leaving the forest standing between these lines. The latter must be opened out to a width of not less than 40 feet, or the young trees will not get sufficient air and light, so that a strip of forest of about 60 feet in width always remains between the lines in which the Rubber-trees are planted. Another very necessary requirement to ensure plenty of air and light is the constant clearing of the dense scrub around the young trees, which grows with marvellous rapidity, and, on account of the scarcity of labour, this has not been done as frequently as it ought to have been. The drainage about the roots is insured by planting on mounds.

124. The greatest drawback to the rapid growth of the young Rubber-trees during the first three or four years is the danger of their being constantly bitten off by the deer, and, as the construction of fences to prevent this is an expensive item, there has been some hesitation in incurring this expenditure; however, they have become so destructive that there is no help for it, and split bamboo fences and other kinds have been introduced now, and are being put up around each tree to protect it. The cost of these fences is from 2 to 4 annas each.

125. The nursery was extended by about half an acre to get more space for transplanting. No cuttings were made, as the stock of young trees, consisting of about 3,000 cuttings and 8,000 seedlings, was more than could be planted out in two years, so that there was no danger of operations coming to a standstill for the want of young trees.

Nursery work.

126. The seed was sown on 34 beds and succeeded admirably, there being 37,234 seedlings alive now in the nursery. Of the above beds, one was prepared with earth only, without charcoal, and produced 3,011 seedlings, 20 beds were prepared with rather coarsely-broken charcoal, and the latter but slightly mixed with the soil, these produced an average of 707 seedlings in each bed; 12 beds were prepared with very finely-broken charcoal well worked into the soil, and produced an average of 1,864 seedlings on each bed.

127. The beds were constructed running east and west, and along the south edge of all the beds except one moveable side shade seven feet high was put up, consisting of dried grass tied between split Areca stems and placed vertically so as not to have any drip; and, whilst the seed germinated more or less freely on all the shaded beds, as shown above, none germinated at all on the bed which had not been shaded; this, coupled with the fact that there are no seedlings on the shaded beds wherever the hot midday sun got at them over the top of the vertical shade erected, seems proof positive that Rubber-seedlings cannot be raised with certainty without artificial side shade.

The time of sowing varied. It commenced on the 18th and 21st of December, 1877; then was continued in the end of January and the first week in February, 1878; then again at the beginning of March; and the last seed was sown on the 27th of March, 1878. On four beds the seed germinated on the 1st April, 1878, and on all the remainder by the 22nd of the same month.

128. A survey of the plantation gave the following results:—

	Acres.
Area planted	572·85
„ cleared for planting	112 05
„ occupied by roads, nurseries, streams, and lands unsuited for planting	45·84
Total	730·74

This was distributed over the different compartments as follows:—

Area Statement of Moran Pokri Block, Charduar Caoutchouc Plantation, 1877-78.

No. of compartment.	Area planted.	Area not planted.					Total.
		Cleared for planting.	Streams, tanks, and low ground.	Buildings.	Roads.	Nurseries.	
1	64·0	4·85	6·23	.....	0·38	.....	75·46
2	67·80	1·25	8·59	1·15	2·30	2·60	83·69
3	53·85	.....	1·60	0·50	2·31	.....	58·26
4	132·40	.....	2·10	.....	1·53	.....	136·03
5	128 05	.....	2·50	.....	1·50	.....	132·05
6	77·25	.....	1·35	.....	1·27	.....	79·87
7	29 50	50·35	0·75	.....	1·03	.....	81·63
8	20·00	55·60	7·13	.....	1·02	.....	83·75
Total	572·85	112·05	30·25	1·65	11·34	2·60	730·74

129. The expenditure during the year on the Charduar Caoutchouc plantation has been Rs. 3,635-13-5.

130. The rainfall at the Charduar Caoutchouc plantation for the last three years is given in the following table:—

	1875-76.	1876-77.	1877-78.
April	9·37	2·64	4·20
May	11·16	8·89	7·44
June	15·19	24·21	11·52
July	19·51	9·96	24·80
August	22·69	9·63	8·90
September	17·07	10·17	20·71
October	3·84	6·77	2·10
November	0·87	0·13	4·73
December	0·47	0·60	0·08
January	0·78	0·66	0·41
February	0·44	.....	1·32
March	0·78	2·06	3·40
Total	102·17	75·72	89·61

Bamuni Hill plantation.

131. The growth of the trees in the small experimental Caoutchouc plantation on the Bamuni Hill near Tezpur continues very slow. Countings made at the end of last working season gave the following results:—

Total number of planting spots examined			531
Number of plants alive			459
Ditto failures			72
Percentage of plants alive	87	...	100
Ditto failures	13		

The expenditure on this plantation during the year was Rs. 34-13-6.

Yield and working.

Work by Government agency.

132. The scarcity of local labourers near the reserved forests in the Tezpur division rendered it necessary that coolies for the work should be imported, and a forester was accordingly deputed to engage Nepalese coolies in the Darjeeling district; but the men were very inferior and suffered greatly from fever, so that they did very little work, and the intention of working out timber from these forests for the Goálpára timber market has accordingly been given up, and timber operations in this division will for the present be limited to local requirements only.

The number of Sâl-trees felled by the department in the Balipara reserve was 4. Of other kinds, 218 trees were felled, 203 of which came from the Balipara reserve, and 15 from the Nowduar reserve.

The timber in hand was—

	Logs.	Pieces.
At the commencement of the year	... 36	1,179
Received during the year	... 128	2,014
Total	... 164	3,193
Sold during the year	... 140	1,221
Used by the department	... 1	335
Used for the Paris Exhibition	... 1	...
Lost	... ...	86
Total	... 142	1,642
Balance remaining in hand at the close of the year	... 22	1,551

The difference in the value of timber at the commencement and close of the year was Rs. 1,012 against the year.

Work by purchasers.

133. The number of trees sold standing in the forest to purchasers, who remove them, was 34, as compared with 10 sold in the previous year.

Timber specimens.

134. The number of timber specimens supplied from the Tezpur division for the Paris Exhibition was 13.

135. The amount outstanding on account of revenue at the close of the year was Rs. 2,892-4-0.

Financial Results.

136. As the working out of timber for the Goálpára timber markets cannot be carried out without imported labour, and as the latter is too precarious and expensive to make timber operations in the Tezpur division remunerative, this division must continue to show a deficit for some years to come, because the Caoutchouc plantation is expensive, and the local demand for timber is not large enough to raise a much increased revenue from this source at present. The receipts have been more in the year under notice than during the previous year, as shown below, besides which, there was an amount of Rs. 2,892-4-0 outstanding on account of revenue at the end of the year. The expenditure has also been considerably less, so that the deficit in this division is much smaller than it was the year before.

The receipts and charges, as compared with the previous year, were the following:—

	1876-77. Rs.	1877-78. Rs.
Receipts	3,204	4,315
Charges A	18,874	11,591
Charges B	4,306	6,980
Total Charges ...	23,180	18,571
Deficit ...	19,976	14,256

The difference in the value of stock at the commencement and close of the year was Rs. 891 in favour of the year.

The following table exhibits the transactions of the year:—

	Receipts.		Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III.	3,992	A I., III., half of VI., and one quarter of B.....	5,253
II.—Other revenue.....	II., IV., and V.	323	A II., IV., V., IX., one-eighth of VI., and B	1,371
III.—Formation, protection, and improvement of the forests	.....	.....	A VII., VIII., three-eighths of VI., and five-eighths of B	11,947
Total.....	.....	4,315		18,571

The revenue collected on produce removed from the forest by consumers or purchasers is so small in the Tezpur division that it would not be a correct representa-

tion, if a larger proportion than one-eighth of VI. and B had been debited in the above table against this revenue.

Golághát Division.

Area and Boundaries.

137. No addition was made to the area of reserved forests in this division; it remains 454·56 square miles.

Demarcation.

138. The detailed inspection, survey, and demarcation of two Nahor forests on the left bank of the Daigurung river, opposite the present control station, and covering an area of about 16·37 square miles, was carried out with a view of having these forests declared reserves; and, for the same purpose, the forest situated immediately north and west of the present Mikir Hill reserve was inspected carefully, and an area of about .16 miles demarcated. A map of each of these forests was submitted by Mr. Condon. The lands made over to the village of Burhola, in the Nambor reserved forest, were also surveyed and a map prepared.

Protection and Improvement.

Permanent establishment.

139. The permanent protective establishment for the Golághát division remains the same as before.

Jhúming.

140. The chief danger to the forests in this division still is encroachment by jhúming, and to guard against this the Assistant-Conservator in charge made a tour along the Rengma Hills situated immediately west of the Nambor forest reserves, and warned all the people not to make clearances in the Government forests, explaining at the same time the boundaries to them, which ought to be done every year. At present there remains a small ridge between the villages and the forest boundary which has not been jhúmed, and it is probable that this will be cultivated first; yet there is no saying what might happen if the watching over these boundaries were slackened, since a good piece of virgin forest, with the magnificent soil prevailing almost everywhere in the Nambor reserve, is about the greatest temptation that could be to these simple people, who do not look a day beyond the immediate result of their labour.

Nahor and Ajhar sowing.

141. The growth of the young Nahor trees sown experimentally in the Nambor reserve has been very good, and is most encouraging. A similar experiment in sowing Ajhar was equally successful, and, although the small forest revenue does not at present permit the carrying out of this improvement on as large a scale as would be desirable, small extensions will be made every year as economically as possible to obtain some results for guidance in future as to what ought to be done in this forest, since there are at present large areas containing but a comparatively small proportion of the most valuable kinds of trees, whilst others are very rich both in Nahor and Ajhar, and natural regeneration should certainly be aided in the poorer portions of this forest as soon as an increased forest revenue permits it.

Roads.

142. A track was opened out between Ohguri, the control-station on the Dhansiri river, and Jamaguri, the control-station on the Doyang river, to have more direct communication between the two; this will save much time in travelling, as it reduces the distance of getting from one station to the other to seven miles, whilst formerly it was twenty. All the other roads leading to the different control-stations were repaired, and, where necessary, improved.

Buildings.

143. The building of a bungalow for the divisional forest officer at Golághát was commenced, and nearly completed by the end of the year; it was very creditably done by Mr. Condon, who gave much personal attention to this work. It is hoped that the greater comfort thus provided will be the means of keeping the officer in charge of this division in better health. The inspection-huts at the control-station on the Doyang, Dhansiri, and Doigurung were also repaired during the year, and proper huts provided for the shelter of the subordinate staff.

Yield and working.

Work by Government agency.

144. The cutting of short logs, or dhums, of Ajhar and Nahor for the Goálpára timber market was commenced in the Golághát division, as an experiment, and, if, these works can be made remunerative, the large supplies of timber in these forests would soon add considerably to the

forest revenue. If this work can be made remunerative or not can only be ascertained by very careful experiments, so that, under all circumstances, the starting of it is justifiable.

The difficulties which make this work somewhat precarious are the prejudice of timber traders against everything but Sâl, Sam, and Tita Sappa, and the aversion of boatmen from Bengal and the North-Western Provinces to leaving the Brahmaputra and going up the smaller rivers, and the high wages demanded accordingly for floating; whilst local boatmen are so scarce, and consequently so exorbitant in their demands for floating timber to the Brahmaputra, that their employment is, for the present at least, out of the question. The cutting of planks for bridges has been started, as there is a demand for them.

The number of trees felled by the department in the Golághát division during the the year under notice was 575, all of which were Ajhar, and came from the forest on the right bank of the Dhansiri between its junction with the Dayang and the village of Barhala.

Besides this, one boat, or dugout, was cut, and 16 more were in course of preparation, 13 of which were Hullock, 2 Sam, and 1 Poma. These boats are required by the department for floating, and it is difficult to get men to cut them. If there are more than the department requires for floating timber, there is a ready sale for them at very remunerative prices.

The timber in hand was—

	Logs.	Pieces.	Boats
At the commencement of the year	38	122	...
Received during the year.....	150	27	1
Total.....	188	149	1
Sold during the year	110	79	...
Used by the department	75	54	...
Total	185	133	...
Balance remaining in hand at the close of the year.	3	16	1

The difference in the value of timber at the commencement and close of the year was Rs. 1,343 against the year.

Work by purchasers.

145. The number of trees sold standing in the forest to purchasers, who remove them, were 5 Kochon-trees, which were converted into dugouts. No trees had been sold standing in the forest in the previous year. The revenue realized at the Dayang control station was Rs. 70 on 14 boats brought down that river. From minor produce, the following amounts were realized :—

	Rs.	A.
Charcoal	7	5
Reeds for mats	95	0
Tea-seed	14	0
Total	116	5

146. The amount outstanding on account of revenue at the close of the year was Rs. 26-14.

Timber specimens.

147. The number of timber specimens supplied from the Golághát division for the Paris Exhibition was 2.

Financial Results.

148. The receipts in the Golághát division have increased, as compared with those of the previous year, yet no dependence can be placed on this, since the local demand for timber is very fluctuating and small, and no steady increase in forest revenue from this division can be expected, until it is found practicable to work out timber from these forests, and take it to the Goálpára timber markets at such a cost as to leave a fair profit; and this is what is being attempted now in the way of experiment, and has been the chief reason of an increased expenditure on account of timber operations carried out by Government agency. Another large item of expenditure has been the building of the bungalow for the divisional officer, which, however, was very necessary to ensure him keeping in good health, since there are no bungalows to be had on lease in Golághát. This expenditure will not recur. Independently of this, there was no officer during the previous year, Mr. Condon having gone home on sick leave, which also helps to make the deficit for the year under notice appear larger than it would otherwise have done.

The receipts and charges in the Golághát forest division during the year under notice as compared with the previous year, were as follows:—

		1876-77. Rs.	1877-78. Rs.
Receipts		658	2,133
Charges ...	A	1,172	5,301
	B	1,867	4,462
Total charges		3,039	9,763
Deficit		2,381	7,630

The difference in the value of stock at the commencement and close of the year was Rs. 4,277 in favour of the year.

The following table exhibits the transactions of the year in the Golághát forest division:—

	Receipts.		Charges.	
		Rs.		Rs.
I.—Departmental timber operations.....	I. and III.	1,904	A I., III., three-quarters of VI. and half of B...	4,050
II.—Other revenue	II., IV., and V	229	A II., IV., V., IX., one-eighth of VI., and B	745
III.—Formation, protection, and improvement of the forests.	.....	....	A VII., VIII., one-eighth of VI., and three-eighths of B.	4,968
Total	.....	2,133		9,763

In this division also the revenue collected on produce removed from the forest by consumers or purchasers is very small, and the protection and improvement of the forests demanded less attention from the establishments than the timber works by Government agency in the year under notice.

Cachar Division.

Area and Boundaries.

149. The area of the reserved forests in the Cachar forest division remains the same.

Demarcation.

150. The improved demarcation of the tea grants and other settled lands, either adjoining or included in the forest reserves, has been pushed on vigorously, 34 miles 851 yards of boundary-line having been cleared to a width of 20 feet, and 203 boundary-posts and mounds were erected at short intervals on these lines.

The following is a brief statement of what was done, and what remains to be done, in way of demarcation in the Cachar reserved forests.

I.—The Upper Jiri Reserve.

(1.) Boundaries cut and demarcated—

(*a*) The northern boundary of the reserve, from the Digli to the Jiri river.
(*b*) The boundary of the Digli grant.
(*c*) The boundary of the Bahadurpur grant.

(2.) Boundaries remaining to be cut and demarcated—

(*a*) The lands appertaining to Chorpunji, Shabopunji, and Singkhappunji.

II.—The Lower Jiri Reserve.

(1.) Boundaries cut and demarcated—

(*a*) The lands appertaining to the three Kuki villages.
(*b*) The Alni grant.

(2.) Boundaries remaining to be cut and demarcated—

(*a*) The lands appertaining to the three Nága villages.

III.—Barák Reserve.

(1.) Boundaries cut and demarcated—

(*a*) The Naraindhur grant.
(*b*) The Bhubun Khal grant.
(*c*) The Inner Line boundary (cut by District Officer).
(*d*) Part of Bhubundhur and Doobheedhur grant.

(2.) Boundaries remaining to be cut and demarcated—
- (*a*) The Mankush grant.
- (*b*) Portion of Bhubundhur and Doobheedhur grant.
- (*c*) The Mainadahar grant.
- (*d*) The lands appertaining to the Kuki villages under Mantingkhup.

IV.—Sonai Reserve.

(1.) Boundaries cut and demarcated—
- (*a*) The Dhurmeekhal grant.
- (*b*) Part of Monierkhal grant.
- (*c*) The Inner Line boundary (cut by District Officer).

(2.) Boundaries remaining to be cut and demarcated—
- (*a*) Portion of the Monierkhal grant.
- (*b*) The Rukmini grant.

V.—Katakhal Reserve.

(1.) Boundaries cut and demarcated—
- (*a*) The Rupacherra grant.
- (*b*) Part of Hasirorah or Lallamukh grant.
- (*c*) The Inner Line boundary (cut by District Officer).

(2.) Boundaries remaining to be cut and demarcated—
- (*a*) The Boorunchurra grant.
- (*b*) The merashdari lands situated between the Rupacherra grant and the Hasioorah grant.
- (*c*) The Jafferbund, Sonarbund, and Laharbund grants.
- (*d*) Portion of Hasioorah or Lallamukh grant.

VI.—The Dhaleswari Reserve.

(1.) Boundaries cut and demarcated—
- (*a*) The Cutlicherra grant.
- (*b*) The Inner Line boundary (cut by District Officer).

(2.) Boundaries remaining to be cut and demarcated—
- (*a*) A small portion of Alexandrapur grant.
- (*b*) The Oloicherra grant.

VII.—The Inner Line Reserve.

The whole of the South Cachar Inner Line, forming the northern boundary of the Inner Line reserve from the Sylhet boundary to the Barak River, was cut by the District Officer.

Preparation of maps.

151. Much attention has also been given to the preparation of maps of those private lands which adjoin or are included in the reserved forests of Cachar, and they were finished of 23 of these estates on the scale of 4 inches to the mile, and filed in the Atlas of the Direction Office, and copies kept in the divisional forest office.

The preparation of accurate maps of all the reserves was commenced by Mr. Hare since he took temporary charge of the Cachar forest division, and they are nearly completed.

Protection and Improvement.

Permanent establishment.

152. The increased permanent protective establishments, as sanctioned by the Government of India for the Cachar forest division are the following:—

Conservancy establishment.

Two forest-rangers.
Fourteen forest guards.

Toll-station establishment.

One forest-ranger.
Four forest guards.

This will enable the formation of two sub-divisions, with a forest-ranger in charge of either, and make protection much more effective than it has been hitherto.

153. As the forests are all evergreen or lower hill forests, there is no danger from fire, neither is there any danger of encroachments on the forests by anything except jhuming, and it requires all the vigilance of the forest guards to prevent this, since those tribes that live by this mode of cultivation will shift their villages frequently, and otherwise put themselves to no end of trouble for the sake of getting good forest land to cultivate, rather than make any attempt to manure their fields, or otherwise improve their method of agriculture.

Jhuming.

154. No specific measures for the improvement of the Cachar reserved forests, beyond that arising from their general protection against the felling of immature trees, by which the regeneration is facilitated and insured, and the prevention of cultivation in the forests, have been attempted, neither would such a measure be justified with the present small forest revenue; but that the forests do improve in consequence of this protection there is no doubt, and it is hoped that, by the time the demarcation and valuation surveys have been completed, and the divisional forest officer can give proper attention to improvements of the forests by sowing and planting, that the receipts will have risen sufficiently to carry out such operations in a systematic manner, the same as is being done in the other forest divisions of the Province already.

Yield and working.

155. The system of working the Cachar forests remains the same as was described in para. 123 of last Annual Report. No timber operations are carried on by direct Government agency, and the limited forest establishments sanctioned for this division do not permit of the introduction of the better system of receiving payment in advance for every tree that is sold, or of measuring and marking every individual tree before it is felled; but the advantage of the latter system, as insuring stricter conservancy, is studiously kept in mind, and proposals for the introduction of a change will be submitted as soon as the revenue has risen sufficiently to justify such a step.

The price of timber and other forest produce continues to be levied at the Sealtek revenue station at the former rates, as sanctioned by the Chief Commissioner, and the fees for licenses to cut forest produce, or for elephants to drag timber, also remain the same.

Licenses granted.

156. During the year under notice the following licenses for the cutting of timber, bamboos, cane, &c., &c., and for elephants dragging timber were granted:—

	Licenses for cutting timber, bamboos, &c.	Elephant licenses.
April, 1877	46	5
May, „	56	8
June, „	22	8
July, „	370	33
August, „	262	14
September, „	366	28
October, „	326	22
November, „	44	10
December, „	3	1
January, 1878	250	32
February, „	161	12
March, „	292	24
Total.....	2,198	197

These licenses were distributed in the following proportion amongst the different forest reserves and the unreserved forests:—

	Licenses for cutting timber, bamboos, &c.	Elephant licenses.
I.—Upper Jiri Reserve	237	22
II.—Lower Jiri „	15	...
III.—Barak „	127	6
IV.—Sonai „	44	13
V.—Khatakhal „	141	8
VI.—Dhaleswari „	7	...
VII.—Inner Line „	718	75
Unreserved forests	909	73
Total.....	2,198	197

Sealtek revenue station.

157. The quantities of forest produce, including that from foreign and private forests, which passed the Sealtek revenue station each month were the following:—

Month.	Logs.	Posts and planks.	Bamboos.	Canes in bundles.	Grass in rafts.	Charcoal and firewood in maunds.	Amount realized.
							Rs. A. P.
April, 1877	.....	92	5,234	1,015	4	.....	94 4 9
May, „	28	50	29,150	1,390	1	.....	111 5 7
June, „	89	22	25,400	2,122	.....	66	279 14 0
July, „	64	78	26,700	2,342	3	145	258 12 4
August, „	47	28	25,000	331	.....	.....	307 10 9
September „	189	.....	29,200	592	1	.....	462 14 0
October, „	666	5	44,625	3,123	5	.....	1,795 0 9
November, „	966	11	40,600	2,015	19	.....	3,280 1 9
December „	149	63	12,950	861	13	3	414 7 0
January, 1878	628	66	8,200	984	48	.....	2,015 3 6
February, „	338	438	5,500	2,900	74	4	1,000 0 6
March, „	129	26	105,500	1,682	45	.....	446 8 9
Total	3,293	879	358,059	19,357	213	218	10,416 3 8

Financial Results.

158. The receipts in the year under notice have been more by Rs. 2,972 than in the previous year, which was anticipated at the time the last Annual Report was written, and it is hoped that revenue will increase steadily in the Cachar division, although many of the timber dealers who manufacture tea-boxes, for which a large quantity of wood is required, have, as was anticipated, transferred their trade to Cachar to avoid paying the revenue collected at Sealtek, so that different arrangements will have to be made to prevent this, as was originally proposed, by establishing a toll-station at Sonaimukh as well as at Sealtek, and the necessary proposals to effect this will be submitted for the Chief Commissioner's consideration. Yet, although the payment of revenue is thus avoided to a large extent, the receipts on forest produce exported from Cachar have increased by Rs. 1,877 during the year.

The amount paid for licenses has increased by Rs. 807. The expenditure has also increased under "A.—Conservancy and works" by Rs. 1,303, which is chiefly to be attributed to the increased demarcation work carried out during the year, and the purchase of a boat for the use of the officer in charge of the division; whilst under "B.—Establishments" there has been a decrease, on account of the transfer of Mr. Shakespear, the Assistant-Conservator in charge, first temporarily on famine duty to Madras, and afterwards permanently to the Forest Department in the Panjab, and no forest officer having been available to take his place before the end of the year, so that pay and travelling allowance were saved, except the Rs. 100 a month drawn by the Assistant-Commissioner placed for the time being in charge of the Cachar forest division, otherwise there will be a slight increase in the expenditure of this division for some years to come, as the organization of the forests proceeds. The receipts and charges in the Cachar forest division during the year under notice, as compared with the previous year, were as follows :—

		1876-77. Rs.	1877-78. Rs.
Receipts		10,258	13,231
Charges ...	A	1,449	2,753
	B	8,133	6,163
	Total charges	9,582	8,916
	Surplus	676	4,315

The difference in the value of stock at the commencement and close of the year was Rs. 1,128 against the year.

The transactions of the year are shown in the following table for the Cachar forest division :—

	Receipts.		Charges.	
		Rs.		Rs.
I. Departmental timber operations	I. and III.	414	A I. and III.	8
II. Other revenue	II., IV., and V.	12,817	A II., IV., V., IX., one half of VI. and B	3,756
III. Formation, protection, and improvement of the forests.			A VII., VIII., one half of VI. and B.	5,152
	Total	13,231		8,916

Since there are no timber operations carried on in this division by direct Government agency, no portion of A VI. and B has been entered against the first head of forest receipts, but the expenditure incurred on account of live and dead stock and establishments has been equally divided between the other two heads, which it will be seen is a more correct representation of the financial results in this division.

CHAPTER III.

UNRESERVED OR DISTRICT FORESTS.

159. Assam has, as compared with most provinces of India, a very large area covered with forests, especially in Upper Assam; and, whilst the forests in Lower Assam, in consequence of their proximity to Bengal, have been overworked, so that mature trees of the superior kinds measuring more than 5 feet in girth are very scarce, in Upper Assam the forests are in many places untouched, and might, if it was not for the evident marks of former habitations in the shape of remains of masonry and tanks, with some reason be termed virgin forests, since they have in many places not had an axe used in them for two or three generations of trees.

This state of affairs, no doubt, is owing to scarcity of population, the apathy of the people as regards bettering their condition, and the great distance these forests are situated from other Provinces more densely inhabited by superior races, and the difficult navigation of the Brahmaputra by the ordinary sailing craft of Bengal and North-Western Provinces, in consequence of want of regular and reliable winds in the greater part of Assam, the force of the current in the Brahmaputra, and last, but not least, the weakness of the former Governments and consequent insecurity of property before the Province was annexed.

That the last-named circumstances have completely changed under the present régime is perhaps made by nothing more perceptible than by the rapid disappearance of forests, in consequence of extension of tea cultivation, and the energy displayed by the jhúming tribes, now that their gains are no longer exposed to seizure or partition by tribes and classes with whom might was right, and who found plunder an easier means of livelihood than agriculture.

160. Whilst tea-planting is permanent cultivation, and should have surrendered to it all land, although it may be covered with forest, that is not required to be permanently maintained as forest for the wants of the community and the State, jhúming has nothing to be said in its defence, except that ignorant and simple people cannot be made to change suddenly the mode of cultivation inherited from their forefathers for a better one without causing hardship.

161. With a view to prevent the indiscriminate destruction of forests by the above too rapidly spreading modes of cultivation, and other minor causes, a circular was issued by the Chief Commissioner requiring district officers to make a distinction between "superior" and "inferior" forests, and, whilst using their best endeavours to protect the former even from deterioration, to surrender the latter for cultivation, whenever they considered that such a measure was justified, thus providing a preliminary forest conservancy until the forest revenue had risen sufficiently to permit special officers being placed in charge of such areas of forests as it was considered requisite to maintain permanently for the good of the people and the requirements of the State, and at the same time facilitating the leasing of forest lands to tea-planters for cultivation, and permitting the cutting of firewood and manufacture of charcoal required by tea-planters in all those forests, which it is not intended to conserve.

162. The Government of India has ordered that the effect of the above measures, as laid down in Circular No. 43, dated 10th August, 1877, which is attached to this Report as Appendix III., shall be recorded in the Annual Administration Report of the Forest Department in Assam, and this order will be regularly attended to every year. At present it is almost too early to express an accurate opinion regarding it, which may have been the reason that the District Officers have said little or nothing in their Annual Reports on the subject; but there is no doubt that, as an educational measure alone, the effect of the above orders have been most beneficial, since they oblige mouzahdars and other fiscal officers to pause and consider when a forest question comes before them; and whilst, on the one hand, there is no longer any reason for District Officers delaying decisions of applications for forest land on the ground of uncertainty of what should, and what should not, be given up, now that this has been explained, on the other hand, "superior" and "inferior" forest will not be alienated in future alike as "jungle" or "waste;" and thus forest conservancy is ensured to a certain extent, without special professional officers being placed in charge of the forests, or even without having the areas to be conserved as forests gazetted, for to do the latter, surveys are absolutely necessary in many instances, so that until the increase in forest revenue permits the employment of more forest officers and subordinates, there

will always be "superior" district forests "gazetted" and "non-gazetted;" and it would be of very disastrous consequence if nothing was done for the latter until they could all be gazetted as protected forests.

Gazetted District Forests.

163. A list of the "open" or "district forests" gazetted during the year, in accordance with Rule 14 of the Assam Forest Rules, and Section 2 of Act VII. of 1865, is given as Appendix II. of this Report.

Sylhet district.

164. In the Langai and Singla Government "open" forests, an area of about 200 square miles in the Sylhet district, the following restrictions were sanctioned by the Chief Commissioner, and notified in the *Assam Gazette* of the 22nd of September, 1877, page 323:—

(*a.*) The cutting of jhúms, or the carrying on of any other form of cultivation.
(*b.*) Setting fire to the grass, dry leaves, or forest, or kindling any fire without effectually preventing its spread.
(*c.*) Burning lime or charcoal.
(*d.*) Felling, girdling, cutting or lopping, marking, burning, stripping off bark or leaves, tapping for oil, varnish, gum, or resin, or otherwise injuring any trees, shrubs, or bamboos.
(*e.*) Sawing up, converting, burning, marking, defacing, or altering marks on timber, and dragging, carting, or otherwise removing, timber or bamboos.
(*f.*) Cutting and removing grass, collecting and removing leaves, bark, wood oil, resin, gum, lac, fruits, honey, wax, or any kind of forest produce, or horns, elephants' tusks, skins, hides, stones, lime, or other natural produce.

The Chief Commissioner also sanctioned the levying of the undermentioned rates of toll on produce removed from these forests, which are the same as those levied at the Sealtek revenue station in Cachar:—Rough logs of Jarul, Nagessur, Chama, Kathal, Champa, Sil-kurta, Dolu-kurta, and Poma, 4 annas per cubic foot; rough logs of all other kinds of wood, 2 annas. Converted timber 25 per cent. in addition to the above:—

	Rs.	As.
Charcoal per maund	0	2
Bamboos per 1,000	1	4
Canes (jati and sundi) 1,000 bundles of 76 pieces each ...	1	8
Canes (gulla) ditto ditto	2	0
Grass, each raft	2	8

Besides the above, a fee of Re. 1 is levied by the Deputy-Commissioner from each woodcutter on his permit to cut timber, bamboos, and cane for six months, all permits expiring on the 30th June and 31st December, and Re. 1 per annum for each elephant dragging timber.

165. These forests were closed for the year under report against woodcutters on account of the elephant-hunting carried out by the Khedda Department.

Lakhimpur district.

166. The forests in the Lakhimpur district gazetted during the year as Government open forests were the following, their boundaries are detailed in the above named list, and their area in the aggregate amounts to 459·80 square miles, as detailed below:—

	Square miles.
I.—The Bhorolwah Forest	8·25
II.— „ Kudum „	24·79
III.— „ Parapara „	41·75
IV.— „ Upper Dehing „	236·85
V.— „ Dehing Mukh „	21·48
VI.— „ Jokai „	20·24
VII.— „ Solaguri „	106·44
Total	459·80

These forests were declared open forests only, and not reserves, because the limited forest establishments sanctioned at present by the Government of India do not permit them being placed under the direct management of the Forest Department; but the Chief Commissioner passed orders that they should be held by the District Officer as a trust, to be resigned into the hands of the Forest Department when it might be in a position to take over the management of them, and that no clearance or occupation, or the felling of any but mature trees, should be permitted without the sanction of the Chief Commissioner, and that jhúming must be discontinued in all these forests under Section 14 of the Forest Rules.

167. In the Panidehingia Government open forest in the Sibságar district no restrictions beyond those laid down in the Assam Forest Rules have as yet been imposed.

Sibságar district.

168. The reason that no more forests in the Sibságar district have as yet been gazetted is the difficulty of defining them without artificial boundaries, which have to be surveyed and demarcated in the first instance; and no officer has been available up to the present to carry out this work. The Government of India has, however, now sanctioned a sufficient increase of establishment to permit the starting of a forest division in the Sibságar district, by which this difficulty will be overcome.

Non-gazetted District Forests.

169. The most valuable of these are situated in South Kámrúp along the Khási Hill and Kámrúp boundary. The survey of which latter and the preparation of the maps was only completed in the year under notice, too late to have any of them gazetted as reserves; part of them were inspected by the Assistant-Conservator in charge of the Gauháti forest division, and the remainder will be done during the current year.

Kámrúp district.

170. Next to these in importance are the Sâl forests in the Gáro Hills, which, now that the Government of India has passed final orders on the claims of the zemindars, will, it is hoped, also be declared reserves within a year or two.

Gáro Hills district.

171. Great efforts were made by the Civil authorities to protect the areas reserved in the Khási and Jaintiá Hills for the growth of forests, as enumerated in Appendix VII. of the last Annual Forest Report, against fire, illegal felling, and the breaking up of land for cultivation, and they have generally been successful. The question of how far, and under what conditions, the people for whose benefit these forests were primarily reserved, shall have the use of the produce from them, has been submitted by the Deputy-Commissioner for the orders of the Chief Commissioner. The demarcation of these tracts, where no natural boundaries exist, was commenced in the year under report, and is to be continued, as the only way of insuring the permanent maintenance of these areas as forest in their integrity; as this demarcation is carried out by the people without any aid from Government, the progress made in this work will be somewhat slow and imperfect at first, but can be improved on as necessity for doing so arises.

Khási and Jaintiá Hills district.

Systems of working the Forests.

172. The system of working the forests in the Gáro Hills has been under consideration of the Chief Commissioner during the year, and improvements are to be introduced.

Gáro Hills district.

173. The system of working and collecting the forest revenue in all forests in the Brahmaputra Valley and the Nága Hills district, not under the direct management of the Forest Department, has also been under the consideration of the Chief Commissioner, and the orders passed on this subject are contained in the above-named Circular, No. 43, dated 10th August, 1877. The number of reserved trees was reduced at the same time to twelve kinds, in each of three separate lists prepared for Lower Assam, Upper Assam, and the districts of Cachar and Sylhet, respectively. In addition to these twelve kinds, all trees on the leaves of which silkworms are fed, those on which the lac insect is reared, and those which yield India-rubber or Caoutchouc have been declared reserved trees, and they were published in the *Assam Gazette* of the 11th of August, 1877, for general information.

Brahmaputra Valley and Nága Hills district.

174. The following rules were prescribed by the Chief Commissioner for regulating the payment for valuable timber on land allotted for purposes of cultivation.

(1.) For trees of four feet and more in girth, measured four feet from the ground, the full price according to the Timber-tax Rules must be charged; for trees two feet and more, and less than four feet in girth, measured four feet from the ground, half price only will be charged; and for trees of less than two feet in girth, measured four feet from the ground, no charge at all will be made.

(2.) If, however, the peculiar circumstances of the tract should, in the opinion of the District Officer, render a fixed charge for each tree unadvisable, an

acreage rate may be charged instead, such rate not to exceed Rs. 10 per acre. In all cases in which the District Officer may deem an acreage rate of Rs. 10 insufficient, the land should be considered to be valuable forest, and the application for its lease should be refused.

(3.) Land upon which Sâl timber is growing must not be assigned in any case without a reference having first been made to the chief forest officer in the Province.

Caoutchouc.

175. Proposals to divide the Kámrúp district into Caoutchouc mehals, and to sell the latter by public auction, were submitted by the Deputy-Commissioner for the Chief Commissioner's sanction. A petition was also forwarded by the Deputy-Commissioner of Lakhimpur, for the Chief Commissioner's orders, from one of the principal Marwari traders in Dibrugarh for a monopoly to buy the Caoutchouc in the Lakhimpur district and from the surrounding hill countries beyond the Inner Line, and offering Rs. 15,000 for the same, whilst pointing out that although Rubber-tapping was prohibited, it could not be prevented by the district authorities in the extensive forests of the Lakhimpur district.

These proposals the Chief Commissioner declined to entertain under the present orders of the Government of India on the subject. In the Jaintiá Hills, the right to collect Caoutchouc was, with the sanction of the Chief Commissioner, put up for auction; but whilst the amount realized in 1874-75 for these mehals was Rs. 950, in 1875-76 only nominal offers were made; in 1876-77, Rs. 200 were offered, but not accepted; and in the year under report Rs. 335 were offered, and also declined, it being considered more advisable to let the trees remain untapped than to accept such a trifling sum. The Deputy-Commissioner attributes these small offers to the exhausted state of the trees. The tapping of Rubber-trees in the Government forest reserves is prohibited, and will have to remain so for a number of years to come, on account of the excessive tapping carried on in former times; but most of the trees are recovering, in consequence of the protection they receive.

176. The total quantity of Caoutchouc exported from Assam during the last two years is given below:—

	1876-77. Mds.	1877-78. Mds.
Gáro Hills	50	62
Goálpára	1,104	1,170
Kámrúp	227	488
Darrang	853	1,183
Nowgong	1,335	1,206
Sibságar	514	44
Lakhimpur	5,114	4,817
Cachar	275	1,290
Sylhet	740	483
Total...	10,212	10,743

This shows but a small decrease in the export of Caoutchouc as compared with other years, and proves that the excessive tapping is still carried on.

177. The imports of Caoutchouc from non-British territories into Assam during 1877-78 were the following:—

	Mds.
Into the Goálpára district	18
„ Kámrúp „	66
„ Darrang „	339
„ Lakhimpur „	1,156
„ Sylhet „	1,047
„ Cachar „	933
Total...	3,559

178. To judge by the above figures, little or no doubt remains that a considerable portion of the Caoutchouc exported is collected in British territory, for, even when making due allowance for the as yet imperfect registration of imports into Assam, the quantities exported greatly exceed the imports, with the sole exception of Sylhet.

District Officers' forest receipts and charges

179. The forest revenue collected by District Officers is shown under the different service heads in the annual summary of receipts (Form No. 49) attached to this Report. As will be seen from those figures, by far the greater part of this revenue is collected on timber.

The proportions of this revenue collected in each district, and the amount realized during the year under report, as compared with the previous year, is as follows:—

District.	Forest revenue, 1876-77.	Forest revenue, 1877-78.	Increase.	Decrease.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Gáro Hills	9,785 9 3	18,642 7 5	8,856 14 2	....
Kámrúp	7,178 8 0	4,523 10 0	....	2,654 14 0
Nowgong	3,887 2 9	8,613 9 3	4,746 7 3	....
Darrang	6,123 7 2	19,286 3 9	13,162 12 7	....
Sibságar	5,647 13 0	27,221 10 6	21,573 13 6	....
Lakhimpur	2,992 10 0	8,479 9 0	5,486 15 0	....
Nága Hills	42 0 0	24 0 0	....	18 0 0
Khási „	773 0 0	3,711 2 3	2,938 2 3	....
Sylhet	....	204 1 0	204 1 0	....
Cachar	5,936 0 0	2,126 9 0	....	3,809 7 0
Total..	42,346 1 5	92,832 14 8	56,969 2 3	6,482 5 0

The receipts and charges on account of forest management by the District Officers, as compared with the previous year, were the following:—

	1876-77. Rs.	1877-78. Rs.
Receipts	42,346	92,833
Charges ... A	2,241	6,951
Charges ... B	3,721	4,570
Total charges	5,962	11,521
Surplus	36,384	81,312

The following table exhibits the forest transactions of the year under civil officers :—

	Receipts.	Rs.	Charges.	Rs.
I.—Departmental timber operations	I.	*Nil.*	A I.	*Nil.*
II.—Other revenue	II., III., IV., and V.	92,833	A II., III., IV., V., VI., IX., and B., except the forest establishments under the Deputy-Commissioner, Khási Hills.	9,169
III.—Formation, protection, and improvements of the forests.	.....	....	A VII., VIII., and cost of forest establishments under the Deputy-Commissioner, Khási Hills.	2,352
Total	.....	92,833		11,521

No timber operations are carried on by District Officers. The whole of the expenditure under "VI.—Live and dead stock," was on account of marking-hammers, and the establishments employed under civil officers attend to nothing else but the collection of revenue, except in the Khási Hills, where they are chiefly used for the formation, protection, and improvement of the forests.

CHAPTER IV.

GENERAL REMARKS.

Permanent Establishment.

180. Proposals for an increase of the permanent forest establishments were submitted, partly because in some of the forest divisions already organized the protection staff was altogether insufficient, and partly because the starting of forest conservancy in the Sibságar and Lakhimpur districts was very urgently needed. These proposals were so far sanctioned by the Supreme Government that the protective staff was slightly strengthened in three forest divisions, and the starting of a new forest division for Sibságar rendered possible. The forest establishments, as now sanctioned, are the following:—

Direction Office.

		Rs.	Rs.
1 Head clerk...	... ...	100	
1 Second „ ...	... ...	80	
1 Third „ ...	... ...	60	
1 Fourth „ ...	... ...	50	
1 Duftry ...	... ...	16	
2 Peons @ 8 each	... ...	16	
		—	322

Executive Offices.

1 Clerk, @ Rs. 40	... ...	40	
5 Clerks „ „ 30 each	... ...	150	
7 Peons „ „ 7 „	... ...	49	
5 Dâk-runners @ 7 „	... ...	35	
		—	274
	Total ...		596

Forest Establishment.

		Rs.	
1 Ranger @ Rs. 80	... ...	80	
8 „ „ „ 50 each	... ...	400	
8 Foresters „ „ 40 „	... ...	320	
3 „ „ „ 20 „	... ...	60	
1 Forest guard @ Rs. 12	... ...	12	
4 „ „ „ „ 10 each	... ...	40	
18 „ „ „ „ 8 „	... ...	144	
71 „ „ „ „ 7 „	... ...	497	
		—	1,553
	Total ...		2,149 per mensem.

Accounts.

181. At the same time that the new Forest Code came into use, proposals were submitted, for the Chief Commissioner's sanction, that District Officers should keep an unclassified cash-book in Form No. 14 of the Forest Code, in which all forest receipts and expenditure were to be entered as they occurred, and copies of which, with the necessary vouchers, were to be forwarded by District Officers to the Deputy-Conservator for check, classification, and transmission to the Comptroller-General. These proposals were sanctioned by the Chief Commissioner so far as expenditure is concerned; but, as regards forest revenue collected by civil officers, it was considered more convenient that it should be carried direct to the credit of revenue, as heretofore, instead of being passed through the Forest Department accounts, so that civil officers continue to furnish merely a schedule of forest revenue collected during the month in Assam Account Form No. 59, given in para. 139 of the last Annual Report, and the Deputy-Accountant-General furnishes the Deputy-Conservator with a monthly classified register of the forest revenue collected in each district.

Deputy-Conservator's Tour.

182. On the 19th of November, 1877, the Deputy-Conservator left Shillong, and, after issuing instructions to the Assistant-Conservator in charge of the Gauháti division, proceeded to Dhubri, where he had to remain until the 3rd of January, to receive, register, re-pack, and despatch both the forest and general collections of raw produce for the Paris Exhibition from the valley districts, the Khási and Jaintiá and Gáro Hills.

Then, the survey work in the Goma reserve of the Goálpára division was examined, and instructions issued regarding fire-protection in the reserved forests generally, and the office of the Goálpára forest division inspected.

After this, the Lakhimpur district was first visited, and the experimental teak plantation at Makum inspected; then the Sibságar district was reached on the 3rd of February, and the Goalághát division on 7th of the same month. Here, after the inspection of the timber works and the experimental Nahor sowings, the control-stations on the Daygurung and Dhansiri were visited, and the divisional office at Golághát inspected.

From this, the Deputy-Conservator went to Jorhát to receive the reports from forest and civil officers regarding the regular estimate of forest receipts and expenditure, and to furnish this information to the Government of India.

The Tezpur division was reached on the 18th of February, and the divisional office inspected first, then the Charduar and Bamuni Hill Caoutchouc plantations examined, and after this the timber works, and arrangements made for the fire-protection of the Sâl forests, and the demarcation work of Rangajangaon were visited.

On the 19th of March the Kholahat reserve and demarcation work along a disputed boundary was looked over, and on the 22nd of the same month the inspection of the Gauháti division was commenced and completed on the 1st of April. During this time the Deputy-Conservator also attended the Court of the Judge of the Assam Valley to watch over the interests of the Forest Department in an appeal made by the Goálpára zemindars against the award made by the Deputy-Commissioner of Goálpára on account of land taken up for timber depôts by this department.

On the 2nd of April the Mawdem forests, in the Nongkhlao State of the Khási Hills, were inspected, and, when this had been completed, the Deputy-Conservator reached head-quarters on the 7th of April, from where, after a short detention on account of fever, he started again for the Saipung reserve in the Jaintiá Hills, and returned finally on the 18th of May to Shillong.

Live Stock.

183. No elephants were purchased during the year. All the elephants have done well, on the whole, as far as work done by them goes, but a number, chiefly in the Gauháti division, have suffered from sore backs and ulcers generally. No casualties occurred.

These animals are not only most useful, but quite indispensable for timber work in this Province, since manual labour is simply not procurable for it, and the nature of the forests, in consequence of the entangled undergrowth, rough broken surface or swampy deep ground, precludes the employment of carts and even buffaloes in nearly all localities. The difficulty of procuring men to look after the buffaloes has been greater than ever, and, what between the buffaloes running away and their keepers being ill, or pretending to be so to get off their work, these animals have been more bother than they are worth In the much drier climate of the Goálpára district carts and bullocks have this year been employed on hire, which will render timber works in that division to some extent independent of the departmental elephants.

Services of Officers.

184. The Goálpára division remained in charge of Mr. W. R. Fisher during the year, who maintained his reputation as a good forest officer, and was promoted during the year to officiate as Assistant-Conservator, first grade.

The Gauháti forest division was in charge of Mr. A. J. Mein during the whole year, who takes great interest in his work, and manages his subordinates and workmen well. He has been particularly successful in protecting the forests in his charge against fire.

The Tezpur forest division was in charge of Mr. W. E. D'Arcy during the whole year. He was not very successful in managing labourers, and has not been sufficiently careful in ensuring the safety of timber stock in the depôts under his charge, which had to be brought to the notice of the Chief Commissioner.

The Golághát forest division was in charge of the Deputy-Conservator from the beginning of the year until the 27th of September, 1877, when Mr. H. B. Condon returned from leave and took over charge. He has since worked with his usual energy, and re-opened the timber works in this division with considerable success. He was promoted to Assistant-Conservator, third grade, during the year.

The Cachar forest division was in charge of Mr. W. Shakespear from the commencement of the year until the 13th of September, 1877, when he was sent to Madras, for famine duty, and eventually transferred to the Forest Department in the Panjab. Mr. Hare, Assistant-Commissioner, has held temporary charge of this forest division for the

remainder of the year, and taken much interest in forest work, and been very successful in pushing on the demarcation.

Messrs. Mein and D'Arcy passed the lower standard in Assamese, and were promoted to the second grade of Assistant-Conservators. Of the subordinates, Babu Joy Narayan Das, forest-ranger in the Tezpur division, and Babu Koilas Chandra Rai, forest-ranger in the Cachar division, have been brought to the notice of the Deputy-Conservator as hardworking and intelligent officers.

FORM No. 45.

FOREST DEPARTMENT, ASSAM.—AREA OF RESERVED FORESTS, 1877-78.

Division or Range.	Name of Forest.	Area on 1st April, 1877.		Added during the year.		Excluded or transferred to other heads.		Total on 31st March, 1878.		No. and date of Notification of additions and transfers, &c.	REMARKS.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
Direction	Khási and Jaintiá Hills district—										
	Saipung.....	50	....	....	....	....	....	50	....		
Goálpára Division ..	Goálpára district—										
	Bijni Duar	12	368	....	....	....	....	12	368		
	Chirang Duar No. 1	108	88	....	....	....	....	108	88		
	Ditto No. 2	137	403	4	....	....	....	141	403	Dated 3rd September, 1877.	
	Ripu Duar	65	32	....	....	....	....	65	32		
	Guma Duar.....	24	416	....	....	....	....	24	416		
	Sidli Duar	....	....	68	237	....	....	68	237	Ditto.	
Gauháti „ ..	Kámrúp district—										
	Barduar	23	480	....	....	....	....	23	480		
	Pantan	12	....	....	....	....	....	12	....		
	Matiakhar	3	320	....	....	....	....	3	320		
	Kulsi plantation	5	320	....	....	....	....	5	320		
	Jara	1	397	....	....	....	....	1	397		
	Mámilla	2	115	....	....	....	....	2	115		
Tezpur „ ..	Nowgong district—										
	Kh ihat	3	....	....	....	....	....	3	....	.....	Transferred from the Gauháti to the Tezpur Division.
	Deboka	....	520	....	....	....	....	....	520	.....	
	Darrang district—										
	Balipara	87	544	....	....	....	....	87	544		
	Khaling Duar	9	480	....	....	....	....	9	480		
	Charduar	80	....	....	....	....	....	80	....		
	Bhamaraguri	....	386	....	....	....	....	....	386		
	Garumari	....	205	....	....	....	....	....	205		
	Nowduar	82	....	....	....	....	....	82	....		
Golághát „ ..	Nága Hills district—										
	Nambar	389	352	....	....	....	....	389	352		
	Mikir Hill.....	65	....	....	....	....	....	65	....		
Cachar „ ..	Cachar district—										
	Upper Jiri	24	....	....	....	....	....	24	....		
	Lower Jiri	14	....	....	....	....	....	14	....		
	Barak	67	....	....	....	....	....	67	....		
	Sonai	18	....	....	....	....	....	18	....		
	Katakhal.....	80	....	....	....	....	....	80	....		
	Dhaleswari	33	....	....	....	....	....	33	....		
	Inner Line	509	....	....	....	....	....	509	....		
	Total.....	1,910	291	72	237	....	....	1,982	528		

FOREST DEPARTMENT, ASSAM.—AREA OF UNRESERVED FORESTS, 1877-78.

	GAZETTED UNRESERVED FORESTS.										
Goálpára Division ..	Goálpára district—										
	Sidli Duar	74	287	....	....	68*	287	6	....	Dated 3rd Sept., 1877.	*These 68 square miles were gazetted as reserved forests under the Assam Forest Rules.
	Bhorolwah	....	....	8	160	....	....	8	160	„ 5th March, 1878.	
	Kuddum	....	....	24	506	....	....	24	506	Ditto †	
	Parapara	....	....	41	480	....	....	41	480	Ditto.†	
Lakhimpur District	Upper Dehingmukh	....	....	236	544	....	....	236	544	Ditto.†	†Gazetted as open or district forest under the Assam Forest Rules.
	Dehing	....	....	21	307	....	....	21	307	Ditto.†	
	Jokai.....	....	....	20	154	....	....	20	154	Ditto †	
	Solaguri	....	....	106	282	....	....	106	282	Ditto.†	
Sibságar „ ..	Panidihinga	....	....	30	....	....	....	30	....	„ 15th March, 1878.	Ditto ditto
Sylhet „ ..	Langai and Singla forest ..	....	....	200	....	....	....	200‡	....	„ 25th June, 1877.	‡These 200 square miles were gazetted as open or district forests under the Assam Forest Rules.
	Total	74	287	689	513	68	287	695	513		
	NON-GAZETTED UNRESERVED FORESTS.										
Undefined forests in charge of District Officers.	Within revenue limits—										
	Goálpára	8	....	6§	....	....	....	14	....		§The 6 square miles were excluded from the Sidli reserved forests.
	Kámrúp	81	320	....	....	....	....	81	320		
	Darrang	237	51	....	....	....	....	237	51		
	Nowgong	52	....	....	....	....	....	52	....		
	Sibságar	335	....	....	....	30‖	....	305	....		‖These 30 square miles were gazetted as open or district forest under the Assam Forest Rules
	Lakhimpur	2,500	....	....	....	459¶	513	2,040	127		¶These 459 square miles and 513 acres were gazetted as open or district forest under the Assam Forest Rules.
	Sylhet	300	....	....	....	200*	....	100	....		*These 200 square miles were gazetted as open or district forests under the Assam Forest Rules.
	Cachar	84	....	....	....	....	....	84	....		
	Beyond revenue limits—										
	Khási and Jaintiá Hills ..	100	....	....	....	....	....	100	....		
	Nága Hills	525	....	....	....	....	....	525	....		
	Lakhimpur	1,500	....	....	....	....	....	1,500	....		
	Cachar	11	....	....	....	....	....	11	....		
	Gáro Hills	350	....	....	....	....	....	350	....		
	Total	6,083	371	....	....	689	513	5,393	498		

FORM No. 46.

FOREST DEPARTMENT, ASSAM.—AREA OF PLANTATIONS, 1877-78.

Division.	Name of plantation.	On 1st April, 1877. Area.	On 1st April, 1877. Total cost.	During 1877-78. Area added.	During 1877-78. Cost.	On 31st March, 1878. Total area.	On 31st March, 1878. Total cost.	Remarks.
	Kulsi plantation.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	Acres.	Rs. As. P.	
Gauhâti	Caoutchouc	75	1,705 0 0	11	749 0 0	86	2,454 0 0	
	Teak	73	6,275 0 0	....	1,203 0 0	73	7,478 0 0	
	Sissu	20	1,002 0 0	....	115 0 0	20	1,117 0 0	
	New extension	....	.....	....	433 0 0	....	433 0 0	
Tezpur	*Charduar plantation.* Caoutchouc	430	10,750 0 0	143	3,717 0 0	573	14,467 0 0	
	Bamuni Hill plantation. Caoutchouc	8	823 0 0	....	42 0 0	8	865 0 0	
Civil Officers	*Lakhimpur District, Makum plantation.* Teak	4	1,266 0 0	....	.....	4	1,266 0 0	Transferred from the Golâghât division.
	Khâsi and Jaintiâ Hills district. Shillong timber plantation	8	743 0 0	....	523 0 0	8	1,266 0 0	
	Nongkhao Cinchona plantation	2	772 0 0	....	100 0 0	2	872 0 0	
	Total	620	23,336 0 0	154	6,882 0 0	774	30,218 0 0	

FORM No. 47.

FOREST DEPARTMENT, ASSAM.—AREA OF FOREST TRACTS PROTECTED FROM FIRE DURING THE DRY SEASON OF 1878.

Division.	Forest tracts.	Up to 30th June, 1877. Area actually protected.	Up to 30th June, 1877. Total cost.	During dry season of 1878. Area attempted to be protected.	Failures.	Actually protected.	Amount expended.	Total cost up to 30th June, 1878.	Year when protection commenced.
	Goâlpâra District.	Acres.	Rs. A. P.	Acres.	Acres.	Acres.	Rs. As. P.	Rs. As. P.	
Goâlpâra	Sidli	20,216	495 0 0	32,334	13,824	18,510	905 0 0	1,400 0 0	1876-77.
	Guma	....	131 0 0	15,779	15,779	....	284 0 0	415 0 0	"
	Pechadavery and Paunbari	....	23 0 0	....	....	....	.....	23 0 0	1875-76.
	Kâmrûp District.								
Gauhâti	Baridûar	15,200	1,275 0 0	15,200	....	15,200	338 0 0	1,613 0 0	1873-74.
	Pantan	7,680	772 0 0	7,680	....	7,680	296 0 0	1,068 0 0	"
	Matiakhar	2,240	467 0 0	2,240	60	2,180	146 0 0	613 0 0	"
	Kulsi	3,520	673 0 0	3,520	....	3,520	232 0 0	905 0 0	"
	Jara	1,024	337 0 0	1,040	....	1,040	173 0 0	510 0 0	"
	Mimillia	1,344	371 0 0	1,400	....	1,400	151 0 0	522 0 0	1874-75.
	Nowgong District.								
Tezpur	Kholahat	1,920	173 0 0	1,920	....	1,920	136 0 0	309 0 0	1873-74.
	Deboka	518	123 0 0	390	....	390	28 0 0	151 0 0	"
	Darrang District.								
	Ballipara	1,960	619 0 0	4,570	70	4,500	335 0 0	954 0 0	"
	Garumari	110	137 0 0	70	....	70	64 0 0	201 0 0	1874-75.
	Khâsi and Jaintiâ Hills District.								
Civil Officers	Shillong	3,618	913 0 0	3,618	....	3,618	705 0 0	1,618 0 0	
	Total	59,290	6,509 0 0	89,761	29,733	60,028	3,793 0 0	10,302 0 0	

Charged in previous years			5,531 0 0
"	1877-78		3,738 0 0
"	1878-79	Goâlpâra division	428 0 0
		Gauhâti "	281 0 0
		Tezpur "	154 0 0
		Civil Officers	160 0 0
		Total	10,302 0 0

FORM No. 48.

FOREST DEPARTMENT, ASSAM.—PROSECUTIONS FOR BREACHES OF FOREST RULES, 1877-78.

Forest Division and Civil District.	Injury to forests by fire. Cases.	Injury to forests by fire. Persons.	Unauthorized felling or appropriation of wood and minor forest produce. Cases.	Unauthorized felling or appropriation of wood and minor forest produce. Persons.	Grazing without permission or in tracts in which grazing is prohibited. Cases.	Grazing without permission or in tracts in which grazing is prohibited. Persons.	Other offences. Cases.	Other offences. Persons.	Total. Prosecutions. Cases.	Total. Prosecutions. Persons.	Total. Convictions. Cases.	Total. Convictions. Persons.
Goâlpâra division—												
" district	2	4	....	....	....	....	....	....	2	4	2	4
Gauhâti division—												
Kâmrûp district	....	....	2	4	....	....	....	....	2	4	2	4
Tezpur division—												
Darrang district	1	2	1	3	....	....	2	5	4	10	3	8
Nowgong "	1	4	1	4	....	....	....	....	2	8	....	....
Golâghât division—												
Sibsâgar district	....	....	1	4	....	....	....	....	1	4	....	....
Sylhet "	....	....	....	....	....	....	1	4	1	4	....	....
Total	4	10	5	15	....	....	3	9	12	34	7	16

FORM No. 49.

FOREST DEPARTMENT, ASSAM.—SUMMARY OF REVENUE AND EXPENDITURE OF THE DIFFERENT DIVISIONS, 1877-78.

Budget Heads.	Direction.	Goálpára.	Gauhati.	Tezpur.	Golághát.	Cachar.	Civil Officers.	Total.
RECEIPTS.								
I.—Timber and other produce removed from the forests by Government agency—	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
a. Timber	131 4 0	3,808 2 4	5,556 12 3	3,902 8 7	1,903 14 9	....	....	15,302 9 11
b. Firewood and charcoal	....	....	....	....	....	....	....	....
c. Bamboos	....	....	....	....	....	....	....	....
d. Sandal-wood	....	....	....	....	....	....	....	....
e. Grass and other minor produce	....	....	....	....	....	....	....	....
II.—Timber and other produce removed from the forests by consumers or purchasers—								
a. Timber	3,928 0 0	5,609 0 0	2,630 1 0	199 6 0	80 12 0	11,011 3 1	83,584 14 5	1,06,043 4 6
b. Firewood and charcoal	....	59 10 0	....	....	8 1 0	9 8 0	779 7 1	856 10 1
c. Bamboos	....	....	4 5 6	....	....	253 4 2	34 11 0	292 4 8
d. Grazing and fodder grass	....	....	....	....	....	....	18 2 9	18 2 9
e. Other minor produce	....	....	....	....	109 0 0	489 6 2	8,261 1 5	8,859 7 7
III.—Confiscated, drift, and waif-wood	....	21 0 0	50 6 0	....	....	414 4 6	118 13 6	604 7 6
IV.—Revenue from forests not managed by Government :—								
a. Duty on foreign timber and other forest produce	....	....	....	....	....	382 5 9	21 12 6	404 2 3
b. Revenue from shared and private forests	....	....	....	....	....	665 8 6	....	665 8 6
V.—Miscellaneous—								
a. Fines and forfeitures	....	....	....	....	....	....	11 8 0	11 8 0
b. Refunds	41 15 8	24 4 0	....	122 11 0	31 8 9	....	....	220 7 6
c. Other sources	18 4 0	31 0 0	....	....	....	5 6 0	2 8 0	57 2 0
Total Receipts	4,019 7 9	9,553 0 4	8,241 8 9	4,234 9 7	2,133 4 6	13,230 13 8	92,832 14 8	1,34,325 11 3
EXPENDITURE.								
A.—CONSERVANCY AND WORKS.								
I.—Timber and other produce removed from the forests by Government agency—								
a. Timber	12 3 0	2,246 2 0	2,136 2 11	2,065 0 3	1,138 11 0	.....	.....	7,598 3 2
b. Firewood and charcoal	.....	.....	.....	.....	.....	.....	.....	.....
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	.....
d. Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce	.....	.....	.....	.....	.....	.....	.....	.....
II.—Timber and other produce removed from the forests by consumers or purchasers	.....	.....	.....	.....	.....	.....	2,675 3 1	2,675 3 1
III.—Confiscated, drift, and waif-wood	.....	5 0 0	.....	1 12 0	.....	7 10 0	.....	14 6 0
IV.—Revenue from forests not managed by Government—								
a. Duty on foreign timber and other forest produce.	.....	.....	.....	.....	.....	.....	.....	.....
b. Revenue from shared and private forests	.....	.....	.....	.....	.....	.....	.....	.....
V.—Rent of leased forests and payments to shareholders in forests managed by Government	.....	.....	.....	.....	.....	.....	50 0 0	50 0 0
VI.—Live and dead stock—								
a. Purchase of cattle	.....	.....	.....	.....	.....	.....	.....	.....
b. Feed and keep of cattle	216 6 6	797 13 9	2,952 10 3	2,228 5 5	526 10 9	183 13 3	.....	6,905 11 11
c. Plant, tools, and instruments	697 14 9	331 13 9	621 5 9	653 4 9	381 6 3	988 9 6	1,675 13 6	5,350 4 3
VII.—Communications and buildings—								
a. Roads and bridges	.....	.....	232 8 6	748 8 0	162 12 0	.....	.....	1,143 12 6
b. Buildings	5 0 0	1,924 5 6	395 8 0	1,294 15 0	2,866 2 0	28 13 0	190 0 0	6,704 11 6
c. Other works	.....	.....	1 6 0	20 10 3	.....	.....	.....	22 0 3
VIII.—Demarcation, improvement, and extension of forests—								
a. Demarcation	.....	610 5 0	202 2 0	194 8 3	106 0 0	1,361 7 11	10 0 0	2,484 7 2
b. Compensation for land and rights	.....	.....	.....	.....	.....	.....	.....	.....
c. Surveys and working plans	396 12 9	1,195 5 3	510 3 3	.....	.....	93 8 0	.....	2,195 13 3
d. Plantations	.....	.....	2,588 1 6	3,670 10 11	3 8 0	.....	622 12 6	6,885 0 11
e. Protection from fire	.....	1,084 1 6	1,076 8 6	482 12 10	.....	.....	544 8 3	3,787 15 1
f. Other works	33 5 0	.....	721 4 3	91 13 9	42 12 0	.....	.....	889 3 0
IX.—Miscellaneous—								
a. Refunds	.....	45 0 0	.....	.....	.....	31 15 0	1,170 0 0	1,246 15 0
b. Law charges	.....	.....	1 8 3	3 8 6	.....	.....	.....	5 0 9
c. Other charges	171 4 6	283 13 3	311 11 6	135 4 3	74 1 3	56 11 3	12 5 0	1,045 3 0
Total, A.—Conservancy and Works	1,532 14 6	8,493 12 0	12,331 0 8	11,591 2 2	5,301 15 3	2,752 7 11	6,950 10 4	48,953 14 10
B.—ESTABLISHMENTS.								
I.—Salaries—								
a. Conservators	8,400 0 0	.....	.....	.....	.....	.....	.....	8,400 0 0
b. Superior officers	.....	5,135 7 9	3,200 0 0	3,096 6 10	1,630 0 0	3,000 0 0	.....	16,061 14 7
c. Subordinate forest and depôt establishments	.....	1,061 0 0	2,080 2 9	1,933 3 1	1,843 2 8	2,064 1 0	4,568 2 7	13,249 12 1
d. Office establishments	3,464 0 0	528 0 0	518 0 0	478 4 7	536 3 3	627 5 5	.....	6,551 13 3
e. Deputation and special allowances	.....	.....	.....	.....	.....	.....	.....	.....
II.—Travelling Allowances—								
a. Conservators	966 1 6	.....	.....	.....	.....	.....	.....	966 1 6
b. Superior officers	.....	695 0 0	1,171 8 0	1,148 8 0	534 13 0	276 0 0	.....	3,825 13 0
c. Subordinate forest and depôt establishments	.....	16 15 0	7 8 0	.....	15 14 9	.....	.....	40 5 9
d. Office establishments	110 10 3	1 8 9	.....	.....	.....	33 6 0	.....	145 8 [illegible]
III.—Contingencies—								
a. Stationery	4 8 0	0 12 0	.....	.....	3 0 0	4 0 0	.....	12 4 0
b. Carriage of tents and records	34 3 0	46 7 0	28 10 0	18 14 0	.....	.....	.....	128 2 0
c. Pay of police-guards	.....	.....	.....	.....	.....	.....	.....	.....
d. Sundries	559 2 9	124 1 9	219 9 3	244 8 3	152 2 3	112 3 3	2 1 6	1,413 18 0
e. Official postage	303 4 6	46 11 6	85 0 0	60 4 0	45 13 0	46 2 6	.....	537 2 6
Total, B.—Establishments	14,241 14 0	7,655 15 0	7,260 6 0	6,980 0 2	4,460 15 11	6,163 2 2	4,570 4 1	51,382 9 11
Grand Total of Expenditure	15,774 12 6	16,149 11 0	19,591 6 8	18,571 2 11	9,762 15 2	8,915 10 1	11,520 14 5	1,00,286 8 9

FORM No. 50.

FOREST DEPARTMENT, ASSAM.—ACCOUNT CURRENT FOR THE YEAR 1877-78.

DR. CR.

		Rs. A. P.	Rs. A. P.			Rs. A. P.	Rs. A. P.
To cash balance on the 1st April, 1877		683 7 11	683 7 11	By Expenditure under "A."	Direction	1,532 14 6	
„ Revenue received in cash.	Direction	60 3 9			Goálpára Division	8,448 12 0	
	Goálpára Division ..	9,294 8 7			Gauháti „	12,331 0 7	
	Gáuháti „	4,054 5 0			Tezpur „	11,591 2 2	
	Tezpur „	2,350 11 11			Golághát „	5,301 15 3	
	Golághát „	627 7 9			Cachar „	2,720 8 11	
	Cachar „	18,230 13 8			Civil Officers	5,780 10 4	47,706 15 9
	Civil Officers	92,832 14 8	1,22,451 1 4	„ Expenditure under "B."	Direction	14,241 14 0	
„ Revenue adjusted by book-transfer.	Public Works Department.	10,389 4 3			Goálpára Division	7,655 15 0	
	Jail Department ..	1,354 1 8			Gauháti „	7,260 6 0	
	Northern Bengal State Railway.	131 4 0			Tezpur „	6,980 0 9	
			11,874 9 11		Golághát „	4,460 15 11	
„ Remittances from State Treasuries.....		1,06,573 2 7	1,06,573 2 7		Cachar „	6,163 2 2	
„ Remittances by transfer from other departments.	Medical Department	118 8 3			Civil Officers	4,570 4 1	51,232 9 11
	Mathematical Instrument Department.	667 0 9		„ Refunds and drawbacks		1,246 15 0	1,246 15 0
			785 9 0	„ Revenue remittances to State Treasuries.		1,22,583 12 10	1,22,583 12 10
„ Contribution to Funds.	Uncovenanted Service Family Pension Fund.	523 2 0		„ „ „ adjusted by book-transfer		11,874 9 11	11,874 9 11
			523 2 0	„ Advances recoverable		15,486 9 0	
„ Advances recoverable		10,844 0 6	10,844 0 6	„ Rewards for proficiency in Oriental languages.....		540 0 0	15,486 9 0
„ Recovery of permanent advances		350 0 0	350 0 0	„ Payment of permanent advances		770 0 0	540 0 0
				„ Cash balance on the 31st March, 1878 ..		2,543 8 10	770 0 0
							2,543 8 10
		Total....	2,54,085 1 8			Total....	2,54,085 1 8

FORM No. 51.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF OUTSTANDINGS AND LIABILITIES ON ACCOUNT OF CONTRACTORS AND DISBURSERS, 1877-78.

Division.	Department Debtor.			Department Creditor.			Balance due.	
	At commencement of year.	Recoveries in cash, and value of supplies and work done during the year.	At close of year.	At commencement of year	Payments made during year.	At close of year.	To Department (outstandings).	By Department (liabilities).
				Contractors.				
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	.....	431 10 9	431 10 9	.....	715 0 0	715 0 0	283 5 3	.....
Goálpára Division.....	.....	646 0 0	646 0 0	50 0 0	1,434 0 0	1,484 0 0	836 0 0	.....
Gauháti „	.....	88 0 0	88 0 0	.....	88 0 0	88 0 0	.....	.....
Tezpur „	0 0 3	330 0 0	330 0 3	.....	330 0 3	330 0 3	.....	.....
Golághát „	0 10 0	1,990 0 3	1,990 10 3	216 12 2	2,200 9 0	2,417 5 2	426 11 2	0 0 3
Cachar „	.....	72 4 6	72 4 6	.....	503 6 6	503 6 6	431 2 0	.....
				Disbursers.				
Direction	.....	350 0 0	350 0 0	.....	390 0 0	390 0 0	40 0 0	.....
Goálpára Division.....	.....	1,862 0 3	1,862 0 3	467 5 6	2,240 5 3	2,707 10 9	845 10 6	.....
Gauháti „	.....	446 12 3	446 12 3	6 12 3	440 0 0	446 12 3	.....	.....
Tezpur „	.....	4,401 12 0	4,401 12 0	.....	6,814 12 0	6,814 12 0	2,413 0 0	.....
Golághát „	.....	10 0 6	10 0 6	10 0 6	.....	10 0 6	.....	.....
Cachar „	.....	215 8 0	215 8 0	.....	330 8 0	330 8 0	115 0 0	.....
Total.....	0 10 3	10,844 0 6	10,844 10 9	730 14 6	15,486 9 0	16,237 7 6	5,392 13 0	0 0 3

FORM No. 52.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF OUTSTANDINGS ON ACCOUNT OF REVENUE, 1877-78.

Division.	Particulars.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realised during year.	Balance due to the Department at end of year.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Direction	Price of timber and other produce.....	.....	4,019 7 9	4,019 7 9	4,019 7 9	.....
Goálpára	Ditto ditto ditto	580 8 0	9,173 0 4	9,753 8 4	9,553 0 4	200 8 0
Gauháti	Ditto ditto ditto	.....	9,389 14 1	9,389 14 1	8,241 8 9	1,158 5 4
Tezpur	Ditto ditto ditto	.....	7,206 13 7	7,206 13 7	4,314 9 7	2,892 4 0
Golághát	Ditto ditto ditto	.....	2,160 2 6	2,160 2 6	2,133 4 6	26 14 0
Cachar	Ditto ditto ditto	.....	13,230 13 8	13,230 13 8	13,230 13 8	.....
Civil Officers.....	Ditto ditto ditto	.....	92,832 14 8	92,832 14 8	92,832 14 8	.....
	Total.....	580 8 0	1,38,023 2 7	1,38,603 10 7	1,34,325 11 3	4,277 15 4

FORM No. 53.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF TREES FELLED DURING THE YEAR 1877-78.

Division.	Forest Range.	Locality.	Description of trees.	On hand from previous year.		Felled during current year.		Total.		Disposed of during current year.			Closing balance.	
				Number.	C. ft.	Number.	C. ft.	Number.	C. ft.	How disposed of	Number.	C. ft.	Number.	C. ft.
Goálpára Division	Sidli	Haltagaon	Bandarkanda	.....	.....	1	.....	1	.....	Cut into logs and brought to the Dhubri depôt.	1	.....	.....	.....
			Gugura	.....	.....	1	.....	1	.....		1	.....	.....	.....
			Tita Sappa	.....	.....	1	.....	1	.....		1	.....	.....	.....
„ „	Ripu	Kochugaon	Korai	.....	.....	1	.....	1	.....		1	.....	.....	.....
			Gomari	.....	.....	1	.....	1	.....		1	.....	.....	.....
			Jia Poma	.....	.....	1	.....	1	.....		1	.....	.....	.....
Gauhâti „	Kulsi	Pantan Reserve	Sâl	230	.....	427	.....	657	.....	Cut into logs	231	.....	426	.....
			Sam	.....	.....	2	.....	2	.....	Ditto boats	1	.....	1	.....
		Matiakhar	Sam	.....	.....	1	.....	1	.....		.....	.....	1	.....
„ „	Rani Open Forest	Pamohi Hill	Sâl	185	.....	119	.....	304	.....	Ditto logs	184	.....	120	.....
			Sam	.....	.....	5	.....	5	.....	Ditto boats	2	.....	3	.....
Tezpur „	Balipara Reserve	Balipara Sâl Forest	Sâl	.....	.....	4	.....	4	.....	Ditto logs	4	.....	.....	.....
			Ajhar	.....	.....	89	.....	89	.....	Ditto planks	89	.....	.....	.....
		North of Sâl forest	Ajhar	.....	.....	114	.....	114	.....	Ditto logs	114	.....	.....	.....
„ „	Nowduar „	Border of Bhairabi River	Ajhar	.....	.....	10	.....	10	.....	Ditto	10	.....	.....	.....
			Amari	.....	.....	1	.....	1	.....	Ditto	1	.....	.....	.....
			Korai	.....	.....	1	.....	1	.....	Ditto	1	.....	.....	.....
			Gunserai	.....	.....	1	.....	1	.....	Ditto	1	.....	.....	.....
			Serang	.....	.....	1	.....	1	.....	Ditto	1	.....	.....	.....
			Poma	.....	.....	1	.....	1	.....	Ditto	1	.....	.....	.....
Golâghât „	Nambor „	Nambor Forest	Nahor	93	.....	.....	.....	93	.....	Ditto	93	.....	.....	.....
			Ajhar	107	.....	575	.....	682	.....	Ditto	682	.....	.....	.....
			Total	615	.....	1,357	.....	1,972	.....		1,421	.....	551	.....

FORM No. 54.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF LOGS, SLEEPERS, AND OTHER SCANTLINGS CUT AND EXPORTED DURING THE YEAR 1877-78.

Division.	Forest Range.	Locality.	Description of timber and scantling.	On hand from previous year.		Cut during current year.		Total.		Disposed of during current year.			Closing balance.	
				No.	Cubic feet.	No.	Cubic feet.	No.	Cubic feet.	How disposed of.	No.	Cubic feet.	No.	Cubic feet.
Goálpára	Sidli	Bosongaon and Haltagaon	Sál logs	631	....	....	....	631	....	Sent to depôt	76	....	555	....
	,,	Haltagaon	Ajhar ,,	39	....	1	....	40	....	Ditto	40	....	....	....
	,,	,,	Gunserai ,,	2	....	....	....	2	....	Ditto	2	....	....	....
	,,	,,	Barjamu ,,	3	....	....	....	3	....	.....	....	....	3	....
	,,	,,	Bandarkanda ,,	....	....	3	....	3	....	Ditto	3	....	....	....
	,,	,,	Gugura ,,	....	....	2	....	2	....	Ditto	2	....	....	....
	,,	,,	Tita Sappa ,,	....	....	3	....	3	....	Ditto	3	....	....	....
	Ripu	Kochugaon	Sam ,,	....	....	4	....	4	....	Ditto	4	....	....	....
	,,	,,	Korai ,,	....	....	3	....	3	....	Ditto	3	....	....	....
	,,	,,	Jia Poma ,,	....	....	2	....	2	....	Ditto	2	....	....	....
	,,	,,	Gomari ,,	....	....	3	....	3	....	Ditto	3	....	....	....
Gauhâti	Kulsi	Pantan reserve	Sál logs	492	....	251	....	743	....	Ditto	484	....	259	....
	,,	,, ,,	,, scantlings	....	....	53	....	53	....	Ditto	18	....	....	....
										Used by the Department	35			
	,,	,, ,,	Sam boats	....	....	1	....	1	....	Sent to depôt	1	....	....	....
	,,	,, ,,	Poma scantlings	....	....	28	....	28	....	Ditto	28	....	....	....
	,,	,, ,,	Dead Sál posts	....	....	82	....	82	....	Ditto	82	....	....	....
	Rani	Pamohi Hill	Sál logs	116	....	226	....	341	....	Ditto	255	....	86	....
	,,	,, ,,	Dead Sál posts	....	....	35	....	35	....	Ditto	35	....	....	....
	,,	,, ,,	Sam boats	....	....	2	....	2	....	Ditto	2	....	....	....
Tezpur	Balipara	Block A.	Sál logs	173	....	10	....	183	....	Ditto	105	....	78	....
	,,	,,	,, (dead wood)	1,159	....	511	....	1,670	....	Ditto	1,177	....	426	....
										Used by the Department	67			
	Chardúar	Banks of the Mansiri river	Ajhar planks	....	....	851	....	851	....	Sent to depôt	837	....	14	....
	Nowdúar	Ditto Bhairabi river	,, pieces	....	....	20	....	20	....	.....	....	....	20	....
	,,	,, ,,	Amari logs	....	....	2	....	2	....	Ditto	2	....	....	....
	,,	,, ,,	Korai ,,	....	....	3	....	3	....	Ditto	3	....	....	....
	,,	,, ,,	Gunserai ,,	....	....	4	....	4	....	Ditto	4	....	....	....
	,,	,, ,,	Serang ,,	....	....	1	....	1	....	Ditto	1	....	....	....
	,,	,, ,,	Poma ,,	....	....	10	....	10	....	Ditto	10	....	....	....
	,,	,, ,,	Hullock ,,	....	....	3	....	3	....	Ditto	3	....	....	....
	Balipara	North of the Sál forests Block A.	Ajhar ,,	....	....	205	....	205	....	.....	....	....	205	....
Golághát	Nambor Reserve	Dhansiri River	Nahor logs	....	....	101	....	101	....	Ditto	76	....	25	....
	,, ,,	,, ,,	Ditto (second class)	13	....	21	....	34	....	Ditto	1	....	33	....
	,, ,,	,, ,,	Ajhar logs	2	....	95	....	97	....	Ditto	71	....	26	....
	,, ,,	,, ,,	Ditto (second class)	35	....	19	....	54	....	Ditto	10	....	27	....
										Lost	17			
	,, ,,	,, ,,	Ajhar pieces, 12 feet long	....	....	1,308	....	1,308	....	Used by the Department	142	....	1,166	....
	,, ,,	,, ,,	Ajhar planks, 12′×8″×4″	....	....	305	....	305	....	Ditto	5	....	300	....
			Total	2,644	....	4,168	....	6,832	....	.....	3,609	....	3,223	....

FORM No. 55.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF TIMBER AND OTHER PRODUCE BROUGHT TO DEPÔT FROM THE DIFFERENT FOREST DIVISIONS, 1877-78.

Division.	Forest.	Description of Timber, &c.	Number of		Total of each division.	
			Pieces.	Cubic feet.	Pieces.	Cubic feet.
Goálpára	Sidli Reserve	Sál logs	76	1,048	....	.....
	Ditto	Jarul logs	39	636	....	.....
	Ditto	Gunseral logs	2	27	....	.....
	Ditto	Bandarkanda logs	3	39	....	.....
	Ditto	Gugura „	2	26	....	.....
	Ditto	Tita Sappa „	3	40	....	.....
	Ripu „	Korai „	3	33	....	.....
	Ditto	Gomari „	3	34	....	.....
	Ditto	Jia Poma „	2	35	....	.....
	Gaurang River	Jarul „	1	10*	....	.....
	Bhutan	Sama „	4	65	....	.....
	Gauháti Division	Sál „	351	6,749	489	8,742
Gauháti	Pantan Reserve	Sál „	484	8,580	....	.....
	Ditto	Sál (dead wood)	82	163	....	.....
	Ditto	Poma scantlings	28	16	....	.....
	Ditto	Sál „	18	44	....	.....
	Ditto	Sam boats	1	.....	....	.....
	Rani Open Forest	Sál logs	255	4,864	....	.....
	Ditto	Ditto (dead wood)	35	224	....	.....
	Ditto	Sam boats	2	.....	905	13,900
Tezpur	Balipára Reserve	Sál logs	105	1,050	....	.....
	Ditto	Ditto (dead wood)	1,177	4,490	....	.....
	Ditto	Ajhar planks	887	1,648	....	.....
	Nowduar Reserve	Poma logs	10	366	....	.....
	Ditto	Hullock planks	3	91	....	.....
	Ditto	Amari „	2	43	....	.....
	Ditto	Korai „	3	68	....	.....
	Ditto	Gunseral „	4	54	....	.....
	Ditto	Serang „	1	10	2,142	8,720
Golághát	Nambor Reserve	Nahor (1st class)	79	1,621	....	.....
	Ditto	Ajhar „	71	1,554	....	.....
	Ditto	Nahor (2nd class)	1	.....	....	.....
	Ditto	Ajhar „	10	.....	....	.....
	Ditto	„ slabs	16	.....	....	.....
	Ditto	Boat	1	.....	178	3,175
		Total	.....	.....	3,714	34,537

* Drift timber.

FORM No. 56.

FOREST DEPARTMENT, ASSAM.—ACCOUNT OF TIMBER AND OTHER PRODUCE, 1877-78.

Particulars.	Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Balance at the commencement of the year.				
GOALPARA DIVISION—				
Sidah sleepers	28	97	28	97
GAUHATI—				
Sál logs	277	6,123	....	....
„ scantlings	290	882	....	....
Sam sleepers	6	21	....	....
Ahay logs	6	48	579	7,074
TEZPUR DIVISION—				
Sál logs	29	385	....	....
„ (dead wood)	177	549	....	....
Ajhar logs	1	14	....	....
„ planks	944	1,888	....	....
„ sleepers	10	34	....	....
„ scantlings	11	11	....	....
Bola logs	6	57	....	....
Poma planks	87	15	1,215	2,958
GOLÁGHÁT DIVISION—				
Ajhar logs	38	968	....	....
„ „ (second class)	11	....	....	....
Nahor „ ditto	95	....	....	....
Poma „ ditto	16	....	160	968
Received during the year.				
GOALPARA DIVISION—				
Sál logs	427	7,797	....	....
Jarul „	40	646	....	....
Gunseral „	2	27	....	....
Bandarkanda logs	3	39	....	....
Gugura logs	2	26	....	....
Tita Sappa „	3	40	....	....
Korai „	3	33	....	....
Gomari „	3	34	....	....
Jia Poma „	2	35	....	....
Sam „	4	65	480	8,742
IN TRANSIT FROM THE GAUHÁTI TO THE GOALPARA DIVISION—				
Sál logs	134	3,079	....	....
„ „ (dead wood)	16	31	....	....
Ahay logs	3	24	153	3,134
GAUHATI DIVISION—				
Sál logs	739	13,453	....	....
„ „ (dead wood)	117	387	....	....
„ scantlings	18	44	....	....
Poma „	28	16	....	....
Sam boats	3	....	905	13,900
TEZPUR DIVISION—				
Sál logs	105	1,950	....	....
„ „ (dead wood)	1,177	4,490	....	....
Ajhar planks	337	1,649	....	....
Poma logs	10	365	....	....
Hullock „	3	91	....	....
Amari „	2	43	....	....
Korai „	3	68	....	....
Gunseral „	4	54	....	....
Serang „	1	10	2,142	8,720
GOLÁGHAT DIVISION—				
Nahor logs	79	1,621	....	....
Ajhar „	71	1,554	....	....
„ „ (second class)	10	....	....	....
Nahor „ ditto	1	....	....	....
Ajhar slabs	16	....	....	....
Boat	1	....	178	3,175
Total..	....	....	5,849	48,763
Removed by purchasers.				
GOALPARA DIVISION—				
Sál logs	148	2,830	....	....
Jarul „	16	263	....	....
Gugura „	1	11	....	....
Gunseral „	2	27	....	....
Sidah sleepers	26	91	193	2,892
GAUHÁTI DIVISION—				
Sál logs	225	4,777	....	....
Sam sleepers	5	17	230	4,794
TEZPUR DIVISION—				
Sál logs	118	2,132	....	....
„ „ (dead wood)	765	3,847	....	....
Ajhar planks	440	959	....	....
„ sleepers	10	34	....	....
Poma logs	9	255	....	....
Hullock „	3	91	....	....
Amari „	2	43	....	....
Korai „	3	68	....	....
Gunseral „	4	54	....	....
Serang „	1	10	1,361	7,492
GOLÁGHÁT DIVISION—				
Ajhar logs (1st class)	48	1,022	....	....
Nahor „ (ditto)	62	1,146	....	....
Ajhar „ (2nd class)	9	....	....	....
Nahor „ (ditto)	54	....	....	....
Ajhar slabs	16	....	189	2,168
Carried over	....	....	1,978	17,347

Particulars.	Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Brought forward	....	....	1,978	17,347
Used by the Department.				
GOALPARA DIVISION—				
Jarul logs	6	126	....	....
Sál „	4	37	10	163
GAUHÁTI DIVISION—				
Sal logs	4	58	....	....
„ scantling	172	502	....	....
„ logs (dead wood)	15	130	....	....
Poma scantlings	3	3	194	693
TEZPUR DIVISION—				
Sál logs	1	13	....	....
„ „ (dead wood)	325	396	....	....
Ajhar planks	10	20	336	429
GOLÁGHÁT DIVISION—				
Ajhar logs	60	1,487	....	....
Nahor „	15	423	....	....
Ajhar „ (2nd class)	9	....	....	....
Nahor „ ditto	39	....	....	....
Poma „ ditto	6	....	129	1,910
Transferred to other Divisions.				
FROM GAUHÁTI DIVISION TO GOÁLPARA DIVISION—				
Sál logs	485	9,828	....	....
„ „ (dead wood)	16	31	....	....
Ahay logs	3	24	504	9,883
Lost during the year.				
GOALPARA DIVISION—				
Sidah sleepers	2	6	2	6
TEZPUR DIVISION—				
Sál logs (dead wood)	41	77	....	....
Ajhar planks	30	60	....	....
Poma „	15	4	86	141
Sent to the Paris Exhibition.				
GOALPARA DIVISION—				
Bandarkanda pieces	1	7	....	....
Korai „	1	8	....	....
Gomari „	1	7	....	....
Tita Sappa „	1	8	4	30
TEZPUR DIVISION—				
Bola logs	1	7	1	7
Balance at the close of the year.				
GOALPARA DIVISION—				
Sál logs	275	5,260	....	....
Jarul „	18	257	....	....
Jia Poma logs	2	25	....	....
Bandarkanda „	2	32	....	....
Korai „	2	25	....	....
Gomari „	2	27	....	....
Sam „	4	65	....	....
Gugura „	1	15	....	....
Tita Sappa „	2	32	308	5,746
IN TRANSIT FROM THE GAUHÁTI TO THE GOALPARA DIVISION—				
Sál logs	134	3,079	....	....
„ „ (dead wood)	16	31	....	....
Ahay „	3	24	153	3,134
GAUHÁTI DIVISION—				
Sál logs	302	4,918	....	....
„ scantlings	136	424	....	....
Poma „	25	13	....	....
Ahay logs	3	34	....	....
Sál „ (dead wood	86	226	....	....
Sam sleepers	1	4	....	....
„ boats	3	....	556	5,604
TEZPUR DIVISION—				
Sál logs	15	190	....	....
„ „ (dead wood)	223	719	....	....
Ajhar „	1	14	....	....
„ planks	1,295	2,488	....	....
„ scantlings	11	11	....	....
Bola logs	5	50	....	....
Poma „	1	110	....	....
„ planks	22	11	1,573	3,603
GOLÁGHAT DIVISION—				
Poma logs (2nd class)	10	....	....	....
Nahor „ ditto	3	....	....	....
Ajhar „ „	3	....	....	....
„ „ (1st class)	1	13	....	....
Nahor „ ditto	2	52	....	....
Boat	1	....	20	65
Total	....	....	5,849	48,763

FORM No. 57.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE AMOUNT REALIZED ON ACCOUNT OF DIFFERENT CLASSES OF TIMBER AND OTHER PRODUCE SOLD DURING 1877-78.

Division.	Description of Timber, &c.	Number of pieces, &c. sold.	Cubic Contents.	Amount realized and due on account of sales.	Average amount per log, &c.	Average cubical contents of logs.	Average amount per cubic foot.
			Foot	Rs. A. P.	Rs. A. P.	ft. in.	Rs. A. P.
Goálpára	First-class sál logs, over 20′ in length	90	1,579	2,369 6 11	26 5 2	17 6	1 8 0
	Ditto ditto	58	921	1,151 6 2	19 13 7	16 0	1 4 0
	Jarul logs, 10′ long	16	203	197 7 0	12 5 5	16 6	0 12 0
	Gunseral logs, ditto	2	27	20 2 9	10 1 4	13 6	0 12 0
	Gugura ditto	1	11	8 4 0	8 4 0	11 0	0 12 0
	Sidah sleepers 10′×5″×10″	6	21	22 6 6	3 11 0	3 6	1 1 0
	Ditto ditto	15	52	39 1 0	2 9 8	3 5	0 12 0
	Ditto ditto	5	18	26 4 0	5 4 0	3 7	1 7 4
Gauhâti	Sál logs	225	4,777	6,715 1 7	29 13 6	21 2	1 6 6
	Sam sleepers	5	17	26 4 0	5 4 0	3 4	1 8 8
Tezpur	Sál logs	118	2,182	2,126 15 7	18 0 4	18 0	1 0 0
	Ditto kalakhambas	765	3,847	2,928 14 0	3 13 3	5 0	0 12 2
	Ajhar planks	446	959	1,438 0 0	3 3 7	2 1	1 8 0
	Poma logs	9	255	191 7 0	21 4 4	28 4	0 12 0
	Hullock logs	3	91	68 6 0	22 12 8	30 4	0 12 0
	Amuri logs	2	43	32 0 0	16 0 0	21 6	0 12 0
	Koral logs	3	68	51 3 0	17 1 0	22 8	0 12 0
	Gunseral logs	4	54	40 4 0	10 1 0	13 6	0 12 0
	Serang logs	1	10	7 11 0	7 11 0	10 0	0 12 0
	Ajhar sleepers	10	34	52 8 0	5 4 0	3 4	1 8 8
Golághát	Nahor logs	62	1,146	859 6 9	13 13 9	18 5	0 12 0
	Ditto pieces	54	....	261 0 0	4 13 4	.....	.....
	Ajhar logs	48	1,022	766 6 0	15 15 5	21 3	0 12 0
	Ditto pieces	9	....	36 0 0	4 0 0	.....	.....
	Ditto slabs	16	....	8 0 0	0 8 0	.....	.....
	Total	1,973	17,347	19,443 13 3	9 13 8	8 9	1 1 11
Deduct— Amount due, but not realized, during year				4,077 7 4			
	Balance			15,366 5 11			
Add— Amount realized on account of former years				.....			
Total shown as revenue on account of sales under Budget Head 1				15,366 5 11			

FORM No. 58.

FOREST DEPARTMENT, ASSAM.— STATEMENT SHOWING THE AMOUNT EXPENDED ON THE DIFFERENT CLASSES OF TIMBER AND OTHER PRODUCE BROUGHT TO DEPÔT DURING 1877-78.

Division or Depôt	Particulars of Timber, &c.	Number of		Expenditure.			Average		
		Pieces.	Cubic contents.	Timber expenses under A I.	Quota of all other expenditure chargeable against timber, &c.	Total amount chargeable against Timber &c.	Amount per piece.	Cubic contents per piece.	Amount per cubic foot.
				Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	ft.	Rs. A. P.
Direction	Sleepers	25	....	12 0 0	.....	12 0 0	0 7 9	....	....
Goálpára division	Sál logs	76	1,048	783 0 0	569 0 0	1,352 0 0	9 12 9	14	0 11
	Jarul logs	40	646						
	Gunseral logs	2	27						
	Bandarkanda logs	3	39						
	Gugura ,,	2	26						
	Tita Sappa ,,	3	40						
	Koral ,,	3	33						
	Gomari ,,	3	34						
	Jia Poma ,,	2	35						
	Sam ,,	4	65						
	Sál logs, received from the Gauhâti Division	351	6,749	1,463 0 0	1,915 0 0	3,378 0 0	9 10 0	19	0 8 0
Gauhâti Division	Sál logs	789	18,453	2,136 0 0	3,602 0 0	5,738 0 0	6 5 6	15	0 6 6
	,, (dead wood)	117	387						
	,, scantlings	18	44						
	Poma ,,	28	16						
	Boats	3	.....						
Tezpur ,,	Sál logs	105	1,950	2,065 0 0	3,188 0 0	5,253 0 0	2 7 0	4	0 0 6
	,, (dead wood)	1,177	4,490						
	Ajhar planks	337	1,649						
	Poma logs	10	365						
	Hullock logs	3	91						
	Amuri ,,	2	43						
	Koral ,,	3	68						
	Gunseral ,,	4	54						
	Serang ,,	1	10						
Golághát ,,	Nahor logs	79	1,621	1,139 0 0	2,911 0 0	4,050 0 0	22 12 0	18	1 4 0
	Ajhar ,,	71	1,054						
	Nahor ,, (second class)	1	.....						
	Ajhar ,, (,, ,,)	10	.....						
	,, slabs	16	.....						
	Boat	1	.....						
	Total	3,739	34,537	7,598 0 0	12,185 0 0	19,783 0 0	5 4 6	9	0 0 0

The quota of all other expenditure entered in column 6 comprises the same proportion of expenditure as was apportioned in each division to "Departmental Timber operations" in the tables showing the transactions of the year under the head of "Financial results."

FORM No. 59.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE REVENUE DERIVED FROM, AND EXPENDITURE INCURRED ON, TIMBER AND OTHER PRODUCE SOLD TO PUBLIC DEPARTMENTS FROM DEPÔT DURING THE YEAR 1877-78.

Name of Department.	Particulars of supplies.	Amount supplied.	Rate.		Amount of Revenue.			Cost to Forest Department.			Comparison of Revenue and Expenditure.	
			At	Per	Due.	Received.	Outstanding.	Timber expenses under A.L.	Quota of all other expenditure chargeable against Timber, &c.	Total.	Surplus.	Deficit.
Direction.		ft.	Rs. As.		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Northern Bengal State Railway.	25 sleepers	....	5 4	sleeper	131	131	....	60	.....	60	62	....
Godlpdra Division.												
Public Works Department.	5 Sál logs	706	1 8	Cubic foot.	159	159	....	63	68	130	129	....
	6 Jarul logs	133	0 12	„	100	100	....					
Gauhátí Division.												
Public Works Department.	149 Sál „	3,421	1 4 +25 per cent. for selection.	„	5,345	4,187	1,158	525	887	1,412	3,933	....
Tezpur Division.												
Public Works Department.	104 „ 115 „ (dead wood).	3,502	1 0	Cubic foot.	3,502	610	2,892					
Jail Department ..	13 Sál logs ..... 54 „ (dead wood).	413	....	„	413	413	....	1,137	1,756	2,893	1,963	....
	150 Ajhar planks ..	367	1 8	„	550	550	....					
	3 Hullock logs.... 2 Amarj „ .... 3 Koral „ .... 4 Gunseri „ .... 1 Serang „ .... 9 Poma „	521	0 12	„	391	391	....					
Goldghát Division.												
Public Works Department.	54 Nahor „	1,021	0 12	„	766	766	....	733	1,873	2,606	..	1,074
	48 Ajhar „	1,022	0 12	„	766	739	27					
Total.....	.....	....	....	....	12,123	8,046	4,077	2,526	4,584	7,110	6,087	1,074
										Deduct Deficit.....	1,074	....
										Balance for the Department.....	5,013	....

FORM No. 60.

FOREST DEPARTMENT, ASSAM.—ABSTRACT SHOWING THE VALUE OF TIMBER AND OF LIVE AND DEAD STOCK FOR THE YEAR 1877-78.

Description of timber and other stock.	On hand at commencement of the year.		Received during the year.		Total.		Sold, otherwise disposed of, and lost during the year, and allowance for depreciation.		On hand at close of the year.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
		Rs.		Rs.		Rs.		Rs.		Rs.
Direction—										
Instruments and ordnance stores	3	116	1	50	4	166	2	112	2	54
Office furniture	....	635	....	148	....	783	....	.....	....	783
Live Stock—										
Elephants	2	4,000	....	.....	2	4,000	2	4,000	....	.....
Tools and plant	....	....	....	4	....	4	....	2	....	2
Buildings—										
Small houses	2	140	....	.....	2	140	....	.....	2	140
Goálpára Division—										
Timber at depôt	28	120	489	10,239	517	10,359	209	4,005	308	6,354
Instruments and ordnance stores	17	402	1	72	18	474	1	1	17	473
Furniture and camp equipage	....	1,090	....	551	....	1,641	....	186	....	1,455
Live Stock—										
Elephants	2	4,000	....	.....	2	4,000	....	.....	2	4,000
Tools and plant	....	185	....	45	....	230	....	24	....	206
Buildings—										
Dhubri bungalow and inspection-houses	5	4,520	....	.....	5	4,520	....	.....	5	4,520
Other houses	10	150	....	.....	10	150	....	.....	10	150
Gauhâti Division—										
Timber at depôt	579	4,800	905	13,892	1,484	18,692	928	12,968	556	5,724
Instruments and ordnance stores	10	114	4	33	14	147	2	3	12	144
Furniture and camp equipage	....	1,005	....	502	....	1,507	....	458	....	1,049
Live Stock—										
Elephants	7	10,000	3	6,000	10	16,000	3	3,600	7	12,400
Tools and plant	....	460	....	491	....	951	....	323	....	628
Buildings—										
Kulsi plantation bungalow	1	4 000	....	.....	1	4,000	....	.....	1	4,000
Other houses	15	300	5	64	20	364	1	20	19	344
Tezpur Division—										
Timber at depôt	1,215	3,875	2,142	6,678	3,357	10,553	1,784	7,690	1,573	2,863
Instruments and ordnance stores	6	183	2	207	8	390	1	107	7	283
Furniture and camp equipage	....	618	....	212	....	830	....	.....	....	830
Live Stock—										
Elephants	3	6,000	1	800	4	6,800	....	.....	4	6,800
Buffaloes	7	288	....	.....	7	288	2	79	5	209
Tools and plant	....	825	....	603	....	1,433	....	205	....	1,228
Buildings—										
Bhairobighat bungalow and inspection house.	2	4,200	....	.....	2	4,200	....	.....	2	4,200
Other houses	22	353	18	600	40	953	12	133	28	820
Golâghât Division—										
Timber at depôts	160	1,423	178	2,434	338	3,857	318	3,767	20	90
Instruments and ordnance stores	8	166	....	.....	8	166	....	.....	8	166
Furniture and camp equipage	....	280	....	117	....	397	....	48	....	349
Live stock—										
Elephants	1	2,000	1	2,000	2	4,000	....	.....	2	4,000
Tools and plant	....	433	....	788	....	1,221	....	135	....	1,086
Buildings—										
Golâghât bungalow and inspection houses.	4	800	1	2,600	5	3,400	....	.....	5	3,400
Other houses	4	100	7	288	11	388	....	.....	11	388
Cachar Division—										
Instruments and ordnance stores	7	163	....	.....	7	163	....	.....	7	163
Furniture and camp equipage	....	298	....	935	....	1,233	....	45	....	1,188
Live Stock—										
Elephants	1	2,000	....	.....	1	2,000	1	2,000	....	.....
Tools and plant	....	69	....	21	....	90	....	62	....	28
Buildings—										
Small houses	2	74	2	23	4	97	....	.....	4	97
Civil Officers—										
Tools and plant	....	.....	....	1,675	....	1,675	....	.....	....	1,675
Total	....	60,185	....	52,077	....	1,12,262	....	39,973	....	72,289

NOTE.—Difference in value at commencement and close of the year, Rs. 12,104.

SHILLONG :
The 26th August, 1878.

GUSTAV MANN,
Deputy-Conservator of Forests, Assam.

APPENDIX I.

Register of Reserved Forests in the Province of Assam added during 1877-78:

GOALPARA FOREST DIVISION.

GOÁLPÁRA DISTRICT.

V. THE SIDLI FOREST RESERVE.—Notified in the *Assam Gazette* of the 8th September, 1877, page 310, situated in the Sidli Duar, west of the Champamati River.

(1.) *Area.*—68·37 square miles, or 43,762 acres.

(2.) *Boundaries.*—North.—The boundary of the Chirang Duar from the Khási Kuri River, in the west, to the Champamati River, in the east, as shown on the Revenue Survey map of 1867-69 and 1873-75.

East.—The Champamati River from the Chirang Duar boundary, in the north, to a boundary-mound marked A ; thence the cultivated lands of Bansbari and Bosongaon, to a boundary-mound marked B, on the Taring River ; thence down the Taring River to the Moira Jhora, and up this Jhora, and along a survey line bounding the cultivated land of Garubasa, first in an easterly and then in a northerly direction, to a boundary-mound, C, on the Champamati River; thence down the Champamati River to a boundary-mound, D, as shown in the Revenue Survey map of 1867-69.

South.—A survey line running in a south-westerly direction from the boundary-mound marked D to the Taring River; thence, first in a north-westerly, and afterwards in a south-westerly direction, to a boundary-mound, marked E, on the Gowrang River ; thence down this river to a boundary-mound marked F ; thence a survey line running north of the cultivated lands of Haltagaon to a boundary-mound marked G, on the Sowmoka River, as shown on the Revenue Survey map of 1867-69 and 1874-75.

West.—The Sowmoka River from the boundary-mound marked G, in the south, to its junction with the Khasi Kuri River ; thence up the latter to the point where the boundary of the Chirang Duar crosses it, as shown on the Revenue Survey map of 1867-69.

(3.) *Soil.*—Sandy loam, with vegetable mould on the surface, which is richest and deepest in the southern part of the reserve, there it is also in some places low and wet, and the soil peaty, whilst in the northern part it is high and gravelly, and small boulders are scattered on the surface. The sub-soil is white sand and decomposed quartz.

(4.) *Description of the Forests.*—Almost a pure Sâl forest, with grass land intervening here and there. On the banks of streams a narrow belt of lower hill forest generally prevails. It has been so overworked in former times, that healthy trees above five feet in girth are very scarce. Fires burning the whole of the forest annually have much interfered with the proper development of the trees.

(5.) *Timber depôts.*— Kokrajhar on the Gowrang River, and Dhubri on the Brahmaputra.

(6.) *Timber markets.*—Kokrajhar and Dhubri.

(7.) *Lines of export.*—The Gowrang, Champamati, and Brahmaputra Rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—The only village remaining within the boundaries is that of Amguri, but there is besides this the abandoned cultivation of the former villages of Maligaon, Meetagaon, Abulgaon, and Khetiguri, which have been demarcated as arable land to be included in the land settlement, and to remain under the management and control of the district officers.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—A map on the scale of one mile to one inch, showing the distribution of the different classes of forests, the arable land, and the compartments into which the forest has been divided, was printed with the Annual Forest Report of Assam for 1876-77, and is filed in the forest offices of Assam.

(11.) *Working plan.*—The topographical and valuation surveys of this forest have been completed, they show that it has been greatly overworked, and requires rest and protection against fire, as well as the cutting of creepers, to let it recover. No felling of trees is contemplated for the present.

VI. THE FIRST ADDITION TO THE SECOND OR WESTERN PART OF THE CHIRANG DUAR RESERVE.—Notified in the *Assam Gazette* of the 8th of September, 1877, page 310, situated immediately north of the Sidli forest reserve, and south of the Chirang Duar Reserve, connecting the two forests.

(1.) *Area.*—Four square miles.

(2.) *Boundaries.*—North.—The southern boundary of the present Chirang Duar reserve, from the Kashi Kuri river, in the west, to the Sowmoka river, in the east.

East.—The Sowmoka river, from the present southern boundary of the Chirang Duar reserve to the crossing of the northern boundary of the Sidli Duar, west of Udhabgaon.

South.—The northern boundary of the Sidli Duar, from the Sowmaka river, in the east, to the Kashi Kuri river, in the west.

West.—The Kashi Kuri river, from the boundary of the Sidli Duar, in the south, to the southern boundary of the present Chirang reserve.

(3.) *Soil.*—Sandy loam, with gravel and sand underneath, and not as low as the Sidli forest.

(4.) *Description of the forest.*—Young Sâl, with grass land intervening, and narrow belts of lower hill forest on the banks of the streams.

(5.) *Timber depôts.*—Kakra Jhar, on the Gaurang river, and Dhubri on the Brahmaputra.

(6.) *Timber markets.*—Kakra Jhar and Dhubri.

(7.) *Lines of export.*—The Gaurang and Brahmaputra rivers.

(8.) *List of villages or private lands remaining within the forest boundaries.*—No villages or cultivated lands are included in the reserves.

(9.) *Rights of surrounding population.*—None.

(10.) *Maps.*—Part of this reserve has been surveyed and divided into compartments, and is shown on the map of the Sidli forest, scale one mile to one inch, and the whole of the forest is also shown on the Revenue Survey map on the same scale (Sheet No. 4), copies of which are filed in the Goálpára and Direction Forest Offices and the office of the Deputy-Commissioner.

(11.) *Working plan.*—This reserve, like the Sidli forest, has been very much overworked in former times, and requires rest and protection against fire before anything else. When the forest has recovered, and felling operations have to be carried on, it will be included in the Sidli working circle.

APPENDIX II.

List of Unreserved or District Forests gazetted during 1877-78, *as "Open Forests" in accordance with Rule* 14 *of the Assam Forest Rules and Section A, of Act VII. of* 1865.

SYLHET DISTRICT.

I. THE LANGAI AND SINGLA GOVERNMENT OPEN FORESTS.—Notified in the *Assam Gazette* of the 30th June, 1877, page 190, situated in the south-eastern corner of the Sylhet district immediately north of Tipperah.

Area.—About 200 square miles.—

Boundaries.—West.—The Tipperah boundary from Vomsual peak, in a northerly direction, to Thal post, on the Thal Nadi; thence along the eastern ridge of the Patharja Range up to the trigonometrical station of Adam Tila, as marked on the Revenue Survey map of 1863-64.

North.—The southern base of the Pesalurah or Patakandi range from trigonometrical station of Adam Tila to the Langai River; thence up the Langai River to its junction with the Dengra Cherra; thence up this steam to its source on the Dewalia range; thence along the ridge of the range in a southerly direction to the source of the Pata Koonee Cherra; thence down the stream to its junction with the Singla River; thence down this river to its junction with the Bhootooa Cherra; thence up this stream to its source on the Chátáchura or Siddeshur range of hills.

East.—The boundary between Sylhet and Cachar, from the source of the Bhootooa Cherra to the Great Trigonometrical Survey station on the Chátáchura Hill.

South.—The Tipperah boundary from the Great Trigonometrical Survey station on the Chátáchura Hill in the east, to the Great Trigonometrical Survey station on the Vomsual Hill in the west.

LAKHIMPUR DISTRICT.

I. THE BHAROLWAH GOVERNMENT OPEN FOREST.—Notified in the *Assam Gazette* of the 9th of March, 1878, page 92, situated in the Bharolwah mouzah, on the left bank of the Ranga Nadi, in the sub-division of North Lakhimpur.

Area.—8·25 square miles.

Boundaries.—North.—The Hinnee Jan from the point where it crosses the Rajgarh Ali, in the west, to its junction with the Ranga Nadi.

East.—The Ranga Nadi from its junction with the Hinnee Jan to Merigaon village, situated north-east of Kampti beel.

South.—A foot-path leading from the above Merigaon village to Hingara Nadi, thence up this stream to its junction with the Ranga Jan, thence up the latter stream to the point where it crosses the Rajgarh Ali, as marked on the Revenue Survey map of 1870-71.

West.—The Rajghar Ali, from the point where it is crossed by the Ranga Jan to the point where it is crossed by the Hinee Jan, as marked on the Revenue Survey map of 1870-71.

II.—THE KUDDUM GOVERNMENT OPEN FOREST.—Notified in the *Assam Gazette* of the 9th of March 1878, page 92, situated in the Kuddum mouzah immediately north of the road leading from the station of Lakhimpur to the Subansiri river, in the sub-division of North Lakhimpur.

Area.—24·79 square miles.

Boundaries.—North.—A line running due east from the Kuddum Nadi to the Mooree Chagor Nadi; thence down the latter stream to its junction with the Nomajee Jan; thence the latter stream to its junction with the Chagor Nadi, thence down the latter stream to its junction with the Goonah Suti, as marked on the Revenue Survey map of 1870-71.

East.—The Goonah Suti from its junction with the Chagor Nadi to the point where the road from Lakhimpur meets it, as marked on the Revenue Survey map of 1870-71.

South.—The Lakhimpur road from the Goonah Suti to the Dhal Nadi.

West.—The Dhal Nadi from the Lakhimpur road to its junction with a suti which connects the Dhal Nadi with the Kuddum Nadi; thence this suti and up the Kuddum Nadi to the western extremity of the northern boundary of this forest, as marked on the Revenue Survey map of 1870-71.

III. THE PARAPARA GOVERNMENT OPEN FORESTS.—Notified in the *Assam Gazette* of the 8th of March, 1878, page 92, situated in the Parapara mouzah north of the Dibru River.

Area.—41·75 square miles.

Boundaries.—North.—The Brahmaputra River from the Terna Suti in the west to the Daliajan in the east.

East.—The Daliajan from the Brahmaputra in the north to the Dibru River in the south.

South.—The Dibru River from its junction with the Daliajan to its junction with the Borola Suti, as marked on the Revenue Survey map of 1867-70.

West.—The Burola Suti, from its junction with the Dibru River to its junction with the Terna Suti; thence the latter stream to the Brahmaputra, as marked on the Revenue Survey map of 1867-70.

IV. THE UPPER DEHING GOVERNMENT OPEN FORESTS.—Notified in the *Assam Gazette* of the 9th of March, 1878, page 92, situated between the Dibru and the Dehing Rivers.

Area.—236·85 square miles.

Boundaries.—North.—The Bar Hap Jan from its junction with the Chata Hap Jan to the point where it crosses the road leading from Teensukia to Dúm-dúm; thence the northern and western boundaries of grant No. 111, the western and southern boundaries of grant No. 109, the southern boundary of grants Nos. 48 and 132; thence the eastern boundary of the latter grant to the Dibru River; thence up the latter river to where the Pangarigarh meets it.

East.—The Pangarigarh from the Dibru River to the Pangarijan; thence up this stream to the point, where it is crossed by the footpath leading to the Manma Nadi, and along the latter footpath until it meets the Manma Nadi; thence down the latter stream to its junction with the Dehing River, as marked on the Revenue Survey map of 1866-69.

South.—The Dehing River from its junction with the Manma Nadi to the western boundary of grant No. 5, Tippum, as marked on the Revenue Survey map of 1866-69.

West.—The western boundary of grant No. 5, Tippum, from the Dehing River to the Rajgarh Ali, as marked on the Revenue Survey map of 1866-69; thence the Rajgarh Ali in a northerly direction to the eastern boundary of grant No. 128; then the latter boundary to the Chota Hap Jan, and down the latter stream to its junction with the Bar Hap Jan.

V. THE DEHING MUKH GOVERNMENT OPEN FORESTS.—Notified in the *Assam Gazette* of the 9th of March, 1878, page 92, situated in the Larna mouzah on the left bank of the Brahmaputra, where this river is joined by the Dehing River.

Area.—21·48 square miles.

Boundaries.—North.—The Larna Jan from its junction with the Brahmaputra to a point where it is met by an old abandoned road.

East.—Along the above old abandoned road from the Larna Jan in a southerly direction to the Sessa Nadi, as marked on the Revenue Survey map of 1867-71, thence the Sessa Nadi to its junction with the Dehing river.

South.—The Dehing river from its junction with the Sessa Nadi to its junction with the Brahmaputra river.

West.—The Brahmaputra river from its junction with the Dehing river to its junction with the Larna Jan.

VI. THE JOKAI GOVERNMENT OPEN FORESTS.—Notified in the *Assam Gazette* of the 9th of March, 1878, page 92, situated in the Jokai and Kotoha mouzahs on the right bank of the Dehing river.

Area.—20·24 square miles.

Boundaries.—North.—The southern boundary of grant No. 14, Sessabari, from the Sessa Nadi in the west to the Ghogra Jan in the east, as marked on the Revenue Survey map of 1866-69; thence down the Ghogra Jan to its junction with the Sessa Nadi; thence up the Sessa Nadi to the point where the western boundary of grant No. 1, Jokai, meets it.

East.—The western and part of the southern boundary of grant No. 1, Jokai, and the western boundary of grant No. 28, Hasrapather, to the Dehing River.

South.—The Dehing River from grant No. 28, Hasrapather, to an old abandoned road east of Nowgaon village, thence along this road in a north-easterly direction to the Now Jan, thence the latter stream to its junction with the Sessa Nadi, as marked on the Revenue Survey map of 1866-69.

West.—The Sessa Nadi from its junction with the Nowjan to grant No. 14, Sessabari.

VII. THE SOLAGURI GOVERNMENT OPEN FOREST.—Notified in the *Assam Gazette* of the 9th of March, 1878, page 92, situated in the Jaipur mouzah, east of the Solaguri Alli.

Area.—106·44 square miles.

Boundaries.—North.—The Hapnee Ali from the Solaguri Ali to grant No. 26, Solaguri; thence the western, southern, and eastern boundary of this grant to where it meets again the Hapnee Ali, thence along the Hapnee Ali to where it meets the road connecting it with the Rajgurh Ali.

East.—The road connecting the Hapnee Ali with the Rajgurh Ali, from the point where it joins the Hapnee Ali in a southerly direction to where it cuts the northern boundary of grant No. 18, Gurbagan Tinkhan, thence along the northern and western boundary of the latter grant to the Rajgurh Ali.

South.—The Rajgurh Ali from grant No. 18, Gurbagan Tinkhah, to grant No. 22 Joriapokhur; thence the eastern, northern, and western boundary of that grant to where it meets again the Rajgurh Ali; thence the latter road to the boundary of the Sibságar district, thence along the boundary of the Sibságar district until it meets grant No. 40, Hingra Jan; thence the eastern and northern boundary of the latter grant until it again meets the boundary of the Sibságar district, and along the latter boundary up to the Solaguri Ali.

West.—The Solaguri Ali from the boundary of the Sibságar district to the point where it meets the Hapnee Ali.

Sibsagar District.

I. The Panidihingia Government Open Forest.—Notified in the *Assam Gazette* of the 15th of March, 1878, page 110, situated in the Panidihingia Soluwan mouzah, west of the Assam Trunk Road, between the Dimu Nadi and the Nao Jan.

Area.—30 square miles.

Boundaries.—West and North.—The Nao Jan, from its junction with the Dimu Nadi to the point where it is crossed by the Nága Ali.

East.—The Nága Ali from the point where it crosses the Nao Jan to the point where it crosses the Dimu Nadi.

South.—The Dimu Nadi from the point where it is crossed by the Nága Ali to its junction with the Nao Jan.

APPENDIX III.

Rules Regulating Timber Felling.

Circular No. 43, dated Shillong, the 10th August, 1877.

From.—T. J. MURRAY, ESQ., C.S., Offg. Secretary to the Chief Commissioner of Assam,

To—All Deputy-Commissioners in the Assam Valley, and Political Officer in Charge, Nága Hills,

IN modification of this office Circular No. 52,* of the 13th September, 1875, the Chief Commissioner has been pleased to make the following Rules for the regulation of timber-felling in all forests in the Assam Valley not directly under the management of the Forest Department:—

* To Assam Proper.

I. Timber-bearing tracts must be classed as *superior* and *inferior*. Under "*superior*" must be ranged all detached groups of large trees, and all forests which, from the value of the timber it contains, or from its position in relation to population, or from other causes, should be conserved.

Under "*inferior*" must be classed all tracts which may be deforested without detriment to public interests. *Inferior* forest may contain land covered with large timber, which from its position cannot be utilized.

In superior forests.

II. Rs. 10 shall be charged for every sâl-tree, Rs. 6 for all other reserved trees (*vide* lists annexed), and Rs. 2 for unreserved trees used for commercial purposes, such as the manufacture of tea-boxes, sale to timber-merchants, or for firewood sold for stationary or marine steam-engines. The felling of sâl-trees of less than five feet in girth, and of all other trees, if less in girth than four feet, is prohibited. The girth of the tree is in all cases to be measured four feet from the ground. Charcoal must not be manufactured within the forest.

III. The felling of trees on the leaves of which silkworms are fed, of those on which the lac insect is reared, or of such as yield India-rubber or caoutchouc, is strictly prohibited without special authority in writing from the Deputy-Commissioner or the officer in charge of the sub-division. This authority will be granted only in the case of "Sum" and "Sualu" trees of more than three feet in girth measured four feet from the ground.

IV. Any person desirous of felling trees shall apply to the Deputy-Commissioner or the officer in charge of the sub-division on unstamped paper in Form A, appended, and shall at the same time tender the tax on such trees.

V. If there is no objection to the felling of the timber applied for, the Deputy-Commissioner or the sub-divisional officer shall receive the tax and enter the particulars of the application in a register, which he shall keep in the said Form A, and return the application to the applicant with his orders entered on it, for presentation to the mouzahdar in whose mouzah the timber is to be felled, or such other officer as the Deputy-Commissioner or sub-divisional officer shall direct.

VI. When the trees are felled, the feller shall apply to the mouzahdar of the mouzah in which they have been felled, or such other officer as the Deputy-Commissioner or sub-divisional officer shall direct, to whom he should show his application form. The mouzahdar, or such other officer as the Deputy-Commissioner or sub-divisional officer shall direct, will then give the feller a pass in Form B, attached, and permit the logs to be removed. This Form B shall be printed in foil and counterfoil. The original pass is to be made over to the person who wishes to remove the timber; the duplicate is to be submited monthly to the Deputy-Commissioner or sub-divisional officer for comparison with the register of applications; and the triplicate is to remain with the mouzahdar, or such other officer as the Deputy-Commissioner or sub-divisional officer shall direct, in his bound book of passes, which shall be printed in cheque-book form. There shall be two distinct books of the form,—one printed in black ink, which shall be used for timber from Government forests, and the other printed in red ink, which shall be used for timber which it may be desired to export from foreign or private forests.

In inferior forests.

VII. No charge will be made for single unreserved trees. For charcoal, two annas per maund shall be charged, if manufactured in the forest. For cutting firewood for commercial purposes, licenses shall be given out by the District Officer, or the officer in charge of the sub-division, on payment of one rupee per month for each license. The felling of Sal, Súm, or *Ficus elastic* [illegible] ese purposes is prohibited.

VIII. Time licenses for firewood [illegible] ons to manufacture charcoal in the forest, shall be granted on verbal [illegible] the mouzahdar, or such officer as the Deputy-Commissioner or sub-d[illegible]r shall direct, and shall be printed in Form C, attached, in foil and counterfoil, like the passes for timber, but on coloured paper,—green and blue being used in turn for monthly licenses, and yellow and red for licenses for six months, where the latter are preferred. These licenses shall be granted by name, and shall not be transferable. Endeavours shall be made by the mouzahdars, or such other

officers as the Deputy-Commissioner or sub-divisional officer shall direct, to collect expired licenses as far as possible, so as to prevent their being used beyond the proper time. The pages of the pass and license-books shall be numbered consecutively in the Deputy-Commissioner's office before issue.

In both superior inferior and foressts:

IX. Ryots shall not be charged for any forest produce required *bonâ fide* for their own us except reserved trees.

I.—List of trees declared reserved trees under the provisions of Rule 12 *of the Forest Rules published in the* Assam Gazette *of* 16*th September*, 1876, *page* 502, *in the districts of Goálpára, Kámrúp, Gáro Hills, and Khásí and Jaintiá Hills.*

	Native names.	Botanical names.
1	Sâl	*Shorea robusta.*
2	Sisu	*Dalbergia sissoo.*
3	Jarul or Ajhar	*Lagerstræmia Reginæ.*
4	Nagessur or Nahor	*Mesua ferrea.*
5	Sam	*Artocarpus chaplasha.*
6	Poma	*Cedrela Toona.*
7	Gomari	*Gmelina arborea.*
8	Lauri	*Bursera serrata.*
9	Khair, or Koir	*Acacia catechu.*
10	Paroli	*Stereospermum chelonoides.*
11	Gugra or Chellauni	*Schima mollis.*
12	Sida	*Lagerstræmia parviflora.*

All trees on the leaves of which silkworms are fed.
All trees on which the lac insect is reared.
All trees yielding India-rubber or Caoutchouc.

II.—List of trees declared reserved trees uuder the provisions of Rule 12 *of the Forest Rules published in the* Assam Gazette *of* 16*th September*, 1876, *page* 502, *in the districts of Darrang, Nowgong, Nága Hills, Sibságar, and Lakhimpur.*

	Native names.	Botanical names.
1	Sâl	*Shorea robusta.*
2	Ajhar	*Lagerstræmia Reginæ.*
3	Nahor	*Mesua ferrea.*
4	Sam	*Artocarpus chaplasha.*
5	Poma	*Cedrela Toona.*
6	Amari	*Amoora spectabilis.*
7	Gunserai	*Cinnamomum glanduliferum.*
8	Koroi	*Albizzia procera.*
9	Bola	*Morus lævigata.*
10	Koir	*Acacia catechu.*
11	Paroli	*Stereospermum chelonoides.*
12	Uriam	*Bischoffia Javanica.*

All trees on the leaves of which silkworms are fed.
All trees on which the lac insect is reared.
All trees yielding India-rubber or Caoutchouc.

III.—List of trees declared reserved trees under the provisions of Rule 12 *of the Forest Rules published in the* Assam Gazette *of* 16*th September*, 1876, *page* 502, *in the districts of Cachar and Sylhet.*

	Native names.	Botanical names.
1	Jarul	*Lagerstræmia Reginæ.*
2	Nagessur	*Messua ferrea.*
3	Cham	*Artocarpus chaplasha.*
4	Kurta	*Isonandra polyantha.*
5	Poma	*Cedrela Toona.*
6	Gomai	*Gmelina arborea.*
7	Gundroi	*Cinnamomum glanduliferum.*
8	Jhalna	*Terminalia bicolorata.*
9	Rata	*Dysoxylum binectariferum.*
10	Peng	*Cynometra polyandra.*
11	Jinari	*Podocarpus bracteata.*
12	Koroll	*Dipterocarpus sp.*

All trees on the leaves of which silkworms are fed.
All trees on which the lac insect is reared.
All trees yielding India-rubber or Caoutchouc.

A.

Application for permission to fell Timber in the District of

1	2	3	4	5	6	7	8	9	10
Consecutive number of application.	Name and residence of the applicant.	Description of trees which the applicant wishes to fell.	Mouzah.	Locality.	Number of each description.	Tree.	Signature of Treasurer and date.	Signature of Officer granting the application.	Signature of Forest-ranger or other officer marking the trees to be felled.
		Sâl trees.....							
		Reserved trees.							
		Unreserved trees.....							

B.

Pass showing Timber cut or Charcoal burned by *in the Mouzah or imported into the Mouzah*
of *in the* *District.*

1	2	3	4	4	6
Consecutive number of pass.	Name and residence of woodcutter or importer.	Locality where felled or whence imported.	Description of trees felled or timber imported.	Number of logs, or quantity of charcoal covered by this pass.	Mouzahdar's signature and date.

C.

License for cutting Firewood in the *Mouzah in the* *District.*

1	2	3	4	5			6
Consecutive number of license.	Name and residence woodcutter.	Locality where to be felled.	Name of month or months for which granted	Amount realised.			Mouzahdar's signature and date.
				Rs.	As.	P.	

APPENDIX IV.

Statement showing the result of the examination of the concentric rings of seventeen Sâl trees in Sidli Forests, Goálpára District, Assam.

No. of tree.	Average radious, including sap-wood.	Average radius of heartwood.	Number of concentric rings in radius, including sapwood.					Number of rings in heartwood only.
			Radius from centre.					
			To 2·86 in.	To 5·73 in.	To 8·6 in.	To 11·5 in.		
			Girth of tree.					
			1½ foot.	3 feet.	4½ feet.	6 feet.	Total.	
1	12·6	11·2	26	45	65	90	103	87
2	9·3	8·1	26	54	80	....	96	78
3	8·3	7·	30	58	....	....	73	89
4	7·5	6·6	26	50	....	....	65	57
5	6·9	5·4	31	63	....	....	58	76
6	6·7	5·8	24	47	....	....	57	[illegible]
7	6·6	5·2	23	44	....	....	54	[illegible]
8	6·5	5·6	28	52	....	....	60	51
9	6·5	5·6	28	54	....	....	61	59
10	6·2	5·3	28	53	....	....	61	50
11	6·	5·	23	45	....	....	50	40
12	6·	5·1	26	47	....	....	51	42
13	5·9	4·9	27	52	....	....	55	46
14	5·9	4·7	25	51	....	....	52	41
15	5·7	5·	23	54	....	....	46	55
16	5·5	4·7	27	....	....	....	43	41
17	4·8	3·9	25	....	....	....	46	35
	Average number of rings ..		26	51	72	90	....	.....

W. R. FISHER,

Assistant-Conservator of Forests, Goálpára Division.

Extract from the Proceedings of the Chief Commissioner of Assam in the Revenue Department, dated Shillong, the 1st November, 1878.

READ—

Progress Report of Forest Administration for 1877-78 by G. Mann, Esq., Deputy-Conservator of Forests.

RESOLUTION.

THE Chief Commissioner has to acknowledge the very full and interesting report which Mr. Mann has submitted on the operations of his department during the year 1877-78, and, in reviewing it, proposes to confine his remarks to the more salient points of the report, without re-producing the detailed results which are embodied in it.

Sir Steuart Bayley considers that the time has come for reviewing, not merely the annual work of the department, but the general progress that has been made in conservancy since 1874. He will be glad if, in the report on the administration of the current year, Mr. Mann will give a brief historical summary of the work of his department, showing the state of affairs and the system in force when he took charge, the different changes of system, both of conservancy and of forest finance, the gradual increase of establishment, the difficulties he has had to contend with, and how these have been met and overcome, and finally the complete scheme which he considers the department should keep in view as a standard up to which they should gradually work, explaining the obstacles which retard this advance, and the best means of overcoming these obstacles. It is only by some such means as this that stability and uniformity of administration can be secured. The Chief Commissioner observes that professional supervision has not been yet extended to the forests of Sibságar, Lakhimpur, and Sylhet, nor to the Gáro Hills. To the first of these districts it is about to be extended. To Lakhimpur and Sylhet it cannot be extended, from the insufficiency of the establishment allowed; and, consequently, the only available measure has been adopted of placing the bulk of these forests, as open or unreserved forests, under the supervision of Civil Officers. This measure will, doubtless, have the effect of protecting and preserving them from wanton destruction, and of securing from them a certain amount of revenue; but it does not pretend to go further than this, and even the securing of revenue from them is, both in the past and present season, much hampered by the khedda operations in the Sylhet forests. The revenue derived from elephant mehals is no longer credited to forest revenue, though the latter is pretty sure to suffer from the success of the former. But, apart from this, the Chief Commissioner cannot but regret the policy under which the forest establishment of Assam is limited in proportion to the revenue it secures. Cases have come before him which have led him to the conclusion that the establishment is insufficient for the work which the department has now to do; but, in addition to this, he is convinced that, in a country provided, as Assam is, with immense natural forests, an increase to the establishment must eventually prove a safe and profitable investment, while, on the other hand, the present system has an inevitable tendency to concentrate the energies of the department on increasing the existing revenue, giving undue prominence to securing immediate receipts, and endangering its harmonious relations with the Department of Public Works and other purchasers. In regard to the Gáro Hills, the omission to extend professional supervision has been owing to a different cause from that above specified, *viz.*, to uncertainty as to the respective rights of Government and of certain zemindars, who have only recently come to a settlement of the question.

The Chief Commissioner will await the receipt of Mr. Mann's proposals for the better conservancy of the Gáro Hills forests, for there should now be no delay in arranging for the conservation of the very valuable forests in these hills. It will be necessary, however, to proceed cautiously, and to avoid any inconsiderate interference with rights long enjoyed by the Gáros.

Demarcation and survey (paras. 2—20).

The work done in regard to area and boundaries in the Goálpára forests consisted of the addition of [illegible] miles to the reserve; fair progress was made [illegible]cation of reserves, including an important rectification of the Guma r[illegible]y, and this work the Chief Commissioner considers satisfactory.

No addition was made to the reserves in [illegible]sion, the area of which was, on the contrary, contracted, owing to the tra[illegible] to the Tezpur division of the Kholahat and Deboka reserves, covering an area of 3·81 square miles. The final demarcation of the Barduar reserve, the Jarasal forest, and the Kulsi plantation

reserves was completed during the year. The Divisional Officer, Mr. Mein, inspected during the year about half of the forests along the boundary of the Khási Hills and Kámrúp districts. The Chief Commissioner awaits the Deputy-Conservator's proposals for the formation of reserves from among these forests. Valuation surveys were, as far as practicable, pushed on in the Barduar reserve. This work will, the Chief Commissioner hopes, bear good fruit hereafter.

The area of the Tezpur forest division, as already noted, was extended during the year by the transfer of the Kholahat and Deboka reserves from the Gauháti division. In addition to this, the demarcation of reserves was effectively carried on in the division.

In the Golághát forest division, two valuable Nahor forests on the Daigurung river, covering an area of 16·37 square miles, were surveyed, demarcated, and mapped during the year, with a view to their being declared forest reserves. With the same view, an area of 16 square miles, chiefly covered with Nahor, and adjoining the present Mikir Hill reserve, was examined and demarcated. Other land was also surveyed, and the work done was a substantial step towards increasing the valuable forest reserves of the Province.

In the Cachar forest division the work during the year consisted mainly of the better demarcation of the tea-grants and other settled lands either adjoining or included in the forest reserves, and of the preparation of maps of these lands.

Protection from jungle fires (paras. 21—24).

Notwithstanding the unusual dryness of the season, the work of protecting forests from jungle fires was carried on with marked success. Mr. Mein, the Assistant-Conservator at Gauháti, deserves special mention in this respect. He wisely enlisted the aid and co-operation of the neighbouring villagers in the work, and their willingness to assist is most encouraging. Valuable assistance in this respect was also received from the inhabitants of a village near the Sidli reserve. The Chief Commissioner hopes that the work of fire protection in the Goálpára division will be pushed on energetically during the current year. Fire protection is of the first importance in the case of reserved forests, and without it conservancy operations are mere waste of time and money. In the Tezpur division fire protection operations were fairly successful. The Chief Commissioner agrees with Mr. Mann in his remarks about fire protection. If ever the people can be brought to clearly understand the mischievous effects of carelessly setting fire to the jungle, fire protection will be a comparatively easy matter. The Chief Commissioner would be glad to think that the operations of the Forest Department have some educational value from this point of view. The Chief Commissioner approves the action taken by Mr. Condon to prevent trespass by jhúming in the Golághát forests. In the case of the Cachar forests, too, the utmost vigilance is needed to prevent the jhúming encroachments of the hill tribes.

Creeper-cutting (para. 27)

Creeper-cutting, but only to a limited extent, was carried on during the year. The process, no doubt, is an important adjunct to forest conservancy, and should be carried out systematically: at the same time it ruins the beauty of natural forests, and some consideration may on this score be shown to the creepers in reserves in the immediate vicinity of stations.

Experimental plantations (paras. 28—49.)

The Chief Commissioner is glad to learn that the experiments in sowing Nahor and Ajhar were successful.

Mr. Mann's report contains much useful information as to the success and failure of various experimental plantations, especially of the Caoutchouc-tree. Those at Kulsi, in the Gauháti division, and at Charduar, in Tezpur, have been extended, and have thriven well. On the Bamuni Hill they have failed. Experiments are also being made with the Teak-plantations at Kulsi and at Makum, both of which promise well, though in the latter the borer insect has been most destructive. Toon and Sisu have also been introduced at Kulsi. In Shillong, the introduction of exotic trees has not succeeded so well as might be wished, especially in regard to the Eucalyptus, but various species of pine, fir, and oak are doing well. [illegible] experimental plantations have all undoubted use, not merely from an educatio[illegible] view, but as testing the suitability of soil and climate for timber carryi[illegible] commercial value than the indigenous forest trees; and, as long as they [illegible] with strict economy, the Chief Commissioner would wish to continue the e[illegible]

In the number of trees [illegible] as a slight falling off, as compared with last [illegible] and no remarks are necessary on the amount

Working out timber (paras. 51—63).

brought to [illegible]ot and sold. There is a difficulty in getting timber to the Dhubri market in time for the purchasing season, but the Chief

Commissioner quite approves of the endeavours made by Mr. Mann to supply that market, now that Sâl and Sâm are beginning to fail, with other kinds of wood from the Tezpur and Golághát divisions. The want of local labour will probably render it impossible to continue the experiment from Tezpur, but no such difficulty exists in Golághát, and the aversion of Bengali boatmen to venturing up the affluents of the Brahmaputra will probably be overcome. It will be of the very greatest advantage if by these measures traders are induced to go themselves to the Tezpur and Golághát forests to buy timber for themselves. The number of trees sold standing in the reserved forests during the year was 297, as compared with 523 in 1876-77. These trees are nearly all converted into boats and dugouts in the forest.

In the Cachar division 197 licenses to drag timber by elephants, and 2,198 licenses for cutting timber, &c., were granted during the year, against 77 and 1,511 licenses, respectively, granted in the preceding year. The Chief Commissioner takes this opportunity of asking Mr. Mann for a special report on the working of the Sealtek toll-station. If he understands rightly, the timber cut in the Cachar forests is not taxed, except in the way of fees for permission to cut and drag it, but so much of this timber as leaves the district pays a toll at Sealtek. *Primâ facie*, it would seem very questionable on economical grounds whether such a transit duty is the best method of raising the legitimate revenue from forest produce in Cachar: and, during his recent visit to that district, Sir Steuart Bayley learnt that, in the opinion of the local officers, the toll is in practice vexatious, and has latterly tended to check the trade. It may be that, until a properly organized forest establishment is allowed to Cachar, no better means of raising revenue from forest produce is available. But the Chief Commissioner would be glad if Mr. Mann will consider the matter, and report, in consultation with the district authorities, whether some better system than that of a transit duty cannot be devised.

Two places, *viz.*, Datma, on the Langa river, and Rajadbari, on the Goropila river, were gazetted during the year as places for the control over the trade in timber and boats imported from Bhutan.

Financial results (paras. 64—72).

The financial results of the year are satisfactory, the accounts showing a surplus of Rs. 34,039 at the close of the year, whereas at the close of the preceding year there was a deficit of Rs. 8,351. The receipts during the year were Rs. 52,757 in excess of the receipts during 1876-77. There was an increase in receipts in all the divisions except the Goálpára division. The decrease in this division was due to almost all the dead Sâl-wood having been worked out of the forests, and to the fact that the timber cut did not come sufficiently early into the sale-depôts to be sold during the year. There was a decrease in the receipts of the Direction Office. The Deputy-Conservator reports that the revenue realized by Civil Officers from the open forests has more than doubled, in consequence of the better system introduced, and the more careful collection of forest dues, as compared with former years. The Chief Commissioner notes this result with much pleasure. It shows that District Officers are taking a real interest in forest matters. The total expenditure, as was to be expected, shows an increase under nearly every head, which increase has been fully explained by the Deputy-Conservator. Expenditure may be expected to be high for some years to come, as long as demarcation and survey work has to be carried out. As has hitherto been the case, the major portion of the forest revenue was realized by Civil Officers, as local requirements are at present almost exclusively met from the unreserved forests in charge of Civil Officers.

The receipts and charges on account of the Direction Office, the reserves managed by Forest Officers, and the unreserved forests in charge of Civil Officers were as follows :—

	Receipts. Rs.	Charges. Rs.
Direction Office	4,019	15,775
Reserves in charge of Forest Officers	37,473	72,991
Unreserved forests in charge of Civil Off... ...	92,833	11,521
	1,34,325	1,00,286

There was thus an excess expenditure in ... management of the reserves during the year of Rs. 35,518. The excess ... the management of the reserves, including the proportionate cost of ... ebited to them, amounts to Rs. 43,355. On the whole, Sir Steuart Bayley ... t the Deputy-Conservator is to be congratulated on the financial results of ... r some time to come, excess expenditure in the management of the reserves must be expected; but the total forest

receipts show a steady increase, and the Chief Commissioner is very hopeful that, with fuller establishments, the accounts of future years will exhibit an ever-increasing surplus.

Protection of open and unreserved forests (paras. 159-171).

Mr. Mann has in these paras. recorded some valuable remarks on the system which was introduced by Colonel Keatinge to afford some protection to the unreserved or district forests, which cover an extensive area in Assam, but which cannot, for financial reasons, be brought as yet under a scientific and professional system of protection. It is, perhaps, too early to express a definite opinion as to the result of these measures, but the Chief Commissioner is inclined to agree with Mr. Mann that the actual protection afforded by them is valuable, and that they ensure great indirect advantage in educating the fiscal officers of the Province to understand the advantages and meaning of forest protection. The Deputy-Conservator is requested to submit at an early date a special report on the matter.

In the Langai and Singla open forests in Sylhet, certain restrictions, with a view to the conservation of these forests, were sanctioned during the year and duly notified in the *Gazette*. The levying of toll at fixed rates on produce removed from these forests was also sanctioned. But, as previously explained, no revenue has as yet been realized from them. In the Lakhimpur district, an aggregate area of 459·80 square miles was gazetted during the year as open forest. This forest area is under the direct management of the District Officer. No additional open forests in the Sibságar district were gazetted during the year, owing to want of the necessary establishment to carry out the required preliminary survey. It is hoped that during the current year a considerable area of valuable forest in this district may be surveyed and gazetted as "Protected forests."

The forests lying along the boundary between the Khási Hills and Kámrúp districts, and the valuable forests in the Gáro Hills, have already come under notice.

The Chief Commissioner is glad to learn that the efforts of the Civil authorities in the Khási and Jaintiá Hills to protect the areas reserved in that district for the growth of forest from fire, illegal felling, &c., have been generally successful. The question as to the enjoyment of the produce of these tracts, alluded to by Mr. Mann, has been decided, the privilege of exercising common forest rights in these tracts, subject to certain restrictions, having been conceded to the people, they at the same time being given to understand that the concession is no admission, as regards the Jaintiá Hills, of any right, but is merely a concession of certain privileges on the part of Government, liable to subsequent modification or withdrawal.

The demarcation of these tracts will certainly take some time.

Caoutchouc mehals (paras. 172-179).

The proposals to realize revenue from caoutchouc in Kámrúp and Lakhimpur, alluded to by the Deputy-Conservator in para. 175 of his report, had, under the existing orders of the Government of India in the matter, to be declined by Colonel Keatinge. Sir Steuart Bayley has not yet had an opportunity of studying the question, and reserves his remarks till he becomes better acquainted with all its bearings.

Tours of Forest Officer (paras. 180-183).

The tour of the Deputy-Conservator extended from the 19th November, 1877, to the 18th May, 1878, and he was actively employed during that period in inspecting different portions of his charge, save while he was unavoidably detained at Dhubri, in packing and despatching forest produce, &c., for the Paris Exhibition. Mr. Mann appears to have thoroughly discharged the important duty of inspection.

Subordinate Officers.

Mr. Mann speaks in high terms of Messrs. Fisher, Mein, and Condon. Mr. Hare, Assistant-Commissioner, Cachar, while in temporary charge of the forest office in that district, appears to have devoted much attention to forest work; but the Chief Commissioner hopes that the Government of India will speedily be able to supply the vacancy caused by Mr. Shakespear's transfer from this district, by the appointment of a properly qualified Forest Officer.

By order of the Chief Commissioner of Assam,

S. O. B. RIDSDALE,

Secretary to the Chief Commissioner of Assam.

PROGRESS REPORT

OF

FOREST ADMINISTRATION

IN THE

PROVINCE OF ASSAM

FOR THE YEAR

1878-79.

By GUSTAV MANN,

DEPUTY-CONSERVATOR OF FORESTS, ASSAM.

SHILLONG:
PRINTED AT THE ASSAM SECRETARIAT PRESS.

1879.

No. 75A.

FROM GUSTAV MANN, ESQ.,

Deputy-Conservator of Forests, Assam,

TO THE SECRETARY TO THE CHIEF COMMISSIONER OF ASSAM.

Dated Shillong, the 1st August, 1879.

SIR,

I HAVE the honour to submit the Annual Administration Report of the Forest Department in Assam for 1878-79.

2. The figures in the Financial Statements are, as regards receipts, only preliminary,* since the final statement of the accounts in this department has not been received as yet from the Deputy-Accountant-General; if it reaches me before the final proofs are returned to the press the corrections will be made.

I have the honour to be,

SIR,

Your most obedient Servant,

GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

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* The final figures have been received and the corrections made.

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PROGRESS REPORT

OF

FOREST ADMINISTRATION IN ASSAM

For the year 1878-79.

By GUSTAV MANN,

Deputy-Conservator of Forests, Assam.

INTRODUCTION.

THE YEAR under notice is the fifth one in which the forests of this Province have been administered separately, and the work of the last five years will here be briefly reviewed, in obedience to the orders of the Chief Commissioner, passed in the Resolution on the Annual Forest Report for 1877-78.

2. The history of forest conservancy up to 1874 was recorded in the Annual Forest Report for that year, where it was also shown that the area of Government reserved forests at that time amounted to 269 square miles, whilst the area of gazetted open forests on the 1st of April, 1874, was 422 square miles. At present, the area of Government reserved forests is 1,983, and that of the gazetted protected forests 689 square miles, showing an increase in area of the former amounting to 1,714, and of the latter to 267 square miles.

Area of Government reserved and protected forests.

3. The control over all other unreserved forests in charge of the District Officers, which had not been gazetted on the 1st of April, 1874, was at that time very defective, no restrictions as to clearance of forests were in existence, and, although revenue was collected nominally on twenty-nine kinds of trees, there were no definite rules for District Officers to be guided by in the collecting of forest revenue, and, as regards the conservancy of those forests which had not been gazetted, they were in nobody's special charge. Vast quantities of wood not included in the twenty-nine reserved kinds, and minor forest produce were used, and all timber standing on land allotted for cultivation was made over free, whilst, on the other hand, forest establishments were, on account of the small receipts, kept so weak that but very slow progress in forest management was possible.

Control over non-gazetted district forests.

4. In Cachar and Sylhet matters were even worse than in the valley districts, for neither reserved nor open forests had been selected or gazetted and the collecting of forest revenue at the Sealtek toll-station was sold annually by public auction to the highest bidder. The toll-collector or man who farmed the ghat was supposed to collect statistics as regards the exports of forest produce ; but, since it was decidedly in his interest to show as little as possible, his statements of quantity exported were not considered reliable. The only restriction as to fellings in Cachar was that Jarul and Nagessur should not be cut under 4 feet in girth, which rule, however, could, under the arrangements then existing, be only enforced as regards a comparatively small area of the Cachar forests. Still, it no doubt did some good as far as it went, and showed that there was an intention of insuring the regeneration of the forests ; but, strange to say, whilst thus efforts were being made to protect single trees from felling, nothing had been done to prevent the fearful destruction of many square miles of forests annually by jhúming.

5. Under these circumstances, it was undoubtedly the first and most important object of forest conservancy to select as speedily as possible all the best and most advantageously situated forest areas remaining, and to make them Government reserves, or, where this was not practicable for want

Additions to the Government reserved and protected forests.

of skilled officers or of the necessary subordinate establishments, to have the more valuable forests gazetted as open, or, as they are now called, protected forests, and to place them under special care of the ordinary fiscal officers, with a view of excluding at least jhúming from them, and this has for the last five years been the main aim of the Deputy-Conservator, in the execution of which he has been so far successful, that at the end of the year 1878-79 all the best areas to be permanently maintained as forests had been decided on, and the greater part of them been permanently demarcated. There will undoubtedly for a number of years to come small additions be made here and there to the present area of forest selected for permanent maintenance as Government reserved forests, but it is not likely much to exceed 3,000 square miles within present revenue limits, which will be 6·6 per cent. of the total area of the Province. This is by no means excessive, if the great and daily increasing requirements of forest produce in the Province and beyond it are considered.

System of forest management prevailing.

6. There has been no change in the main system of organizing forest management in this Province. Although there have been often changes made in details, the aim of the Deputy-Conservator from the beginning has been:—

First.—To secure all the better forests as speedily as possible from further spoliation by having them gazetted and properly demarcated.

Second.—To increase the revenue from the Government forest by all legitimate means, since the financial success of forest management is the only sound basis on which it can be permanently established and maintained.

Third.—To protect the areas to be maintained as forest from all that tends to interfere with their highest productiveness.

Fourth.—To ascertain by survey as soon as possible the nature and contents of each forest accurately.

Fifth.—To divide the forests as soon as practicable into well-defined and manageable divisions, ranges, and beats, because such arrangement is absolutely necessary for systematic forest management, and ensures economy in, and the utmost use of, power.

Sixth.—To improve, by sowing and planting as much as ever the income may permit, those forests in which expenditure on such work is most likely to prove remunerative.

Progress in forest conservancy.

7. The carrying out of the above principles has been always approved by the Administration of Assam and the Government of India, and the results have been satisfactory, as shown in the following table:—

Year.	Area of gazetted Government forests in square miles.	Revenue. Rs.	Area protected against fire in acres.	Area surveyed, mapped and valued in acres.	Area of plantations in acres.
1874-75	1,024	65,949	33,600	576	313
1875-76	1,107	1,07,302	18,211	16,292	502
1876-77	1,984	81,568	59,290	32,910	619
1877-78	2,672	1,34,325	60,028	34,551	774
1878-79	2,672	1,61,779	33,259	41,682	958

Forest establishments.

8. The greatest difficulty in administering the Assam forests has been the insufficiency of establishments, in consequence of the limited revenue realized. This state of affairs was aggravated by the transfer of the revenue from Elephants and Soom forest to Miscellaneous land revenue, and the orders of the Supreme Government declining to make the export of Caoutchouc a monopoly, by which alone the control of this trade was practicable.

The increase in the permanent forest establishments during the last five years has been as follows:—

Year.	Superior staff.			Office.		Forests.		
	Deputy-Conservator.	Assistant-Conservators.	Sub-Assistant-Conservator.	Clerks.	Peons.	Rangers.	Foresters.	Guards.
1874-75	1	2	1	6	6	2	12	57
1875-76	1	4	1	9	13	5	11	67
1876-77	1	4	1	9	13	5	11	67
1877-78	1	5	...	9	13	5	11	67
1878-79	1	4	1	10	15	9	11	94

9. No very sudden increase in the revenue can be expected, since the floating of timber on the upper half of the Brahmaputra is difficult, and exports from the forests in Upper Assam will therefore only increase slowly, and an increase in the local requirements depends chiefly on the development of the industry, which can also be but gradual;

still there is no doubt that an increase in the present permanent forest establishments will ensure the still more careful collection of forest revenue, and thus increase receipts.

Whenever the forest revenue in Assam is considered, it must also be remembered that ryots receive everything except the reserved kinds of timber free from the Government forests.

Scarcity of labour and unhealthiness of forests.

10. Next to the insufficiency of establishments no doubt comes the great scarcity and cost of labour, as well as the general unhealthiness of the forests in Assam, which have both been great drawbacks as regards forest work, especially so since importation of coolies on a large scale is not practicable, because there is no work for women.

A useful class, who are an exception to this, and able to do forest work, are the Nepalese, and even these, as a rule, can only work in the plains of Assam during the cold weather, and then suffer frequently from fever, dysentery, and other diseases unfitting them for much hard work.

11. The only way to overcome the difficulty of short establishments is to increase the revenue, and this has always received the very closest attention from the Deputy-Conservator. The difficulty of procuring labour can be overcome only by paying well, but this again operates in the reverse ratio on the quantity of work that can be done, as it makes it more costly, which is much to be deprecated, and has to be watched over very closely since the great prosperity in tea-planting has, as it is, raised the cost of labour in this Province within late years extraordinarily.

12. The promptest attention is always paid to cases of illness, and medicine administered by the officers and subordinates of the Department whenever required, and, although occurrences of illness are constant, deaths are comparatively rare.

13. As regards the standard up to which the Forest Department in Assam should work, the Deputy-Conservator is of opinion that it cannot do better than to adhere to the above principles, as carried out during the last five years. A steady and cautious proceeding is sure in the end to result in more real progress in forest work than spasmodic attempts to do everything at once or carrying out theories regardless of their suitability for the country, or without fully weighing and comparing their cost with the benefits likely to be derived from them.

Future forest management.

14. Assam has had the advantage of a visit from the Inspector-General of Forests during the last season, and it has been proposed by him that Divisional Forest Officers should in future be placed under District Officers as Assistants for forest work, which proposal, if sanctioned, will, it is hoped, greatly extend the usefulness of these officers, and remove any prejudice which may have existed in consequence of forest work having been considered hitherto as that of a separate department.

15. The appointment of an additional officer for the Lakhimpur district has also been promised, which will supply a great want, much felt in past years, and render forest work in that district much more efficient than it has been hitherto.

Sibságar has received a Forest Officer during the year, who is also to take charge of the present Golághát division, comprising the forests in the Nága Hills district. This would be more than one officer could well manage, were it not for the stoppage of working out timber for the Goálpára markets from the Nambor forests, which the experiments made during the last few years have shown cannot be carried on under present circumstances with a hope of sufficient profit to render their continuance desirable.

Gáro Hills forests.

16. The selection of Government reserved forests in the Gáro Hills was commenced in the year under notice, and will be continued in the current year.

Langai and Singla Forests.

17. In the Sylhet district, the demarcation of the northern boundary has been commenced, but otherwise the same unsatisfactory state of affairs, as regards collecting revenue from these forests, continues, inasmuch as they have now been closed for three years, for the purpose of khedda operations, which were not carried out up to the present, and it is understood that the forests will have to remain closed again during the coming season for this purpose. The matter has been brought to the notice of the Chief Commissioner.

CHAPTER I.

SUMMARY OF ADMINISTRATION.

Area and Boundaries.

18. All the Government reserved forests gazetted in former years were, in accordance with Section 34 of the Indian Forest Act of 1878, declared to be Government reserved forests under that Act, and freshly gazetted in the form of schedule recommended by the Government of India, giving district, pergunnah, or other sub-division, name of forest and description of boundaries, which schedule of Government reserved forests is attached to this Report as Appendix I. The only change of boundary made in this new description was that of the southern boundary of the Ripu reserve, by which, however, the area was not affected. A more detailed and accurate description of the boundaries of the Saipung forest was also substituted in this notification for that formerly gazetted.

19. The new procedure prescribed in the Indian Forest Act of 1878, regarding the declaration of Government reserved forests, requires that a notification of proposals to constitute any land a reserved forest must be published first in the local gazette, and that, after all claims regarding such land have been finally settled, for which settlement a period of not less than three months is to be allowed, such land may, by notification in the local gazette, be declared reserved.

20. On account of the time required for this procedure, no area has finally been added to the Government reserved forests during the year under notice, but proposals to that effect were submitted and duly gazetted in conformity with the Forest Act regarding the following areas:—

In the Goálpára District.

(1) The Jengasi-Choraidaka Sâl forest, extending over an area of 2·7 square miles.

(2) The Ateabari Sissu and Khair forest, extending over an area of 14·3 square miles.

In the Darrang District.

An addition to the Khaling Duar reserve forest, area 10·9 square miles.

In the Nowgong District.

The Diju Sâl forest, extending over an area of 4·3 square miles.

In the Nága Hills District.

(1) An addition to the Mikir Hills reserve forest, area 16 square miles.

(2) The Lower Daigurung mixed evergreen forest, extending over an area of 8 square miles.

(3) The Upper Daigurung mixed evergreen forest, extending over an area of 8·3 square miles.

Goálpára division.

21. In the Goálpára division, all the artificial boundaries of the reserves were cleared and the boundary-mounds repaired where necessary.

Further investigation was instituted by the District Officer regarding the southern boundary of the Guma reserved forest, where it adjoins the Parbatjuar estate, and the survey line considered by the Forest Department as the proper boundary was eventually agreed to by the officers of the Parbatjuar estate. After it had been surveyed under the orders of the District Officer, it was declared on the 25th of March, 1879, on the spot, and in the presence of the Deputy-Commissioner, the Divisional Forest Officer, and the representatives of the zemindars of Parbatjuar, to be the proper boundary between the Guma reserved forest and the Parbatjuar.

Gáro Hills forests.

22. The selection of Government reserved forests in the Gáro Hills was commenced in Mouzah No. 4, by the officer in charge of the Goálpára forest division in company with the Deputy-Commissioner of the Gáro Hills, and an area of about 22 square miles selected. This work will be continued during the current year.

23. The valuation surveys in the Guma forest, as well as the work of sub-dividing this forest into compartments, were continued and completed since the end of the financial year. A map, as well as valuation survey statements, is under preparation by the Divisional Officer.

Valuation surveys.

24. All the artificial boundaries of the reserves in the Gauháti division were cleared, and the posts and mounds repaired where necessary. The demarcation of the Matiakhar reserve has been much improved by the erection of 37 more boundary-posts and mounds of the prescribed kind and size.

Gauháti Division.

An excellent map, on the scale of 4 inches to the mile, showing the number and position of every boundary-post along the external boundary of the Barduar reserve, was prepared by Mr. Mein after a re-survey, and is filed in the Direction Office as well as in the office of the Gauháti division.

25. The selection of further areas as reserved forests along the Khási Hills and Kámrúp boundary was continued by the officer in charge of the Gauháti division, but has not as yet been completed, a small portion of the outer Khási Hills east of the Jara reserve remaining to be examined. It is hoped, as soon as this has been done, to submit the necessary proposals during the current year to have these areas gazetted as reserved forests, for the Chief Commissioner's orders.

Selection of new Government reserved forests.

26. Valuation surveys in the Barduar reserve extended by the end of the year to 7,131 acres, the results of which are exhibited in the tabular statement attached to this Report, Appendix III.

Valuation surveys.

27. Although the forest on the Diju river, in the Nowgong district, has not as yet been finally declared a Government reserved forest, the officer in charge of the Tezpur division has found it necessary to place two guards in charge of this forest, to prevent trespass, as it is surrounded on all sides by private estates. The improved demarcation of the Garumari reserved forests with boundary-posts and mounds of the prescribed size was carried out, and completed during the year, a map showing the number and position of each boundary-post is under preparation. All old boundary-mounds were repaired, where necessary, and the survey lines cleared and kept open as paths for the forest guards to patrol.

Tezpur Division.

The road running along the southern boundary of the Charduar rubber plantation reserve was extended by two miles and the portion made last year was repaired, but only one out of the seven bridges on this road has as yet been completed.

28. In the Golághát division all the boundary-lines were cleared and the boundary-mounds repaired where necessary. New and more substantial posts and mounds were erected at the points where the Samaguting road crosses the different boundaries.

Golághát division.

All the villages along the western boundary of the Nambor reserve were visited as in previous years, and the people warned against trespass and the extension of jhúm cultivation in the reserves. This boundary is now well understood by the people.

29. The examination of the forests in the Sibságar district extended over an area of 772 square miles during the year under notice, and a full and detailed report describing the forests on this area, as well as a map showing the extent and position of the different classes of forests, of grass land, and tea-gardens and other cultivation, was submitted by the officer in charge of the Sibságar division. The extent of forests which is considered worth declaring reserved within the total area of 772 square miles examined is 49 square miles, and the necessary proposals will be submitted during the current year for the orders of the Chief Commissioner.

Sibságar Division.

30. The clearing of the boundaries of private lands included or adjoining the Government reserved forests in the Cachar district has been continued vigorously, the total length of boundary-line cleared during the financial year at a width of 20 feet being 39 miles 48 yards, and the number of boundary-mounds erected is 211. This is very difficult work on account of the scarcity of labour and very defective manner in which these estates had originally been demarcated, as well as the ignorance of most of the owners, managers, or assistants of such estates, regarding these boundaries.

Cachar Division.

31. The want of a Divisional Forest Officer has been very much felt to look after these operations, since the Superintendent of Police, who has been in temporary charge

of the Cachar Forest Office, although he moved about a great deal, had his own proper work to do, and could not give much of his time to forest demarcation.

32. A modification of the Inner Line in the southern part of Cachar, forming the northern boundary of the Inner Line reserve was declared and notified in the *Assam Gazette* of the 6th July, 1878, page 272.

Protection and Improvement.

Protective establishment.

33. The small additional permanent establishment sanctioned by the Government of India, and first entertained during the year under notice, has considerably facilitated the better protection of the forests, but it has not been found sufficient to extend professional forest management to more than one district,—that of Sibságar. This, it was considered, would be preferable to attempting both the Sibságar and Lakhimpur districts, since it was more likely that good and efficient work would be done in this way than if too much was attempted at once. The Sibságar district was the more important one, because the forests there are so much scattered that it had not been practicable even to gazette more than one as a protected forest, whilst in the Lakhimpur district nearly all the best forests had been decided on, and were gazetted, thereby ensuring a certain amount of protection for them from the District Officer and his subordinates.

Fire-protection.

34. As regards fire conservancy, the year under notice has been quite unprecedented for its excessive dry weather and violent westerly winds in March and April, which proved most disastrous, and were the cause of more fires in the reserved forests than has been the case ever since fire-protection was commenced in this Province. It has taught Forest Officers the lesson that, although in ordinary years they may reckon on extensive stretches of low-lying land on which the grass usually does not dry, for fire-protection, it will not do to trust to this always in future. The isolation of all forests by perfectly clean fire strips not less than 200 feet broad is absolutely necessary to prevent all risk.

35. In the Goálpára division, both the Sidli as well as the Guma forest had been completely isolated by the cutting and burning of external fire-lines, the same as had been done in former years; but in both these forests the fire was lighted this year inside, and, whilst in the case of the Sidli reserve no trace could be found of the perpetrators, in the Guma forest one of the Dewans of the Parbatjuar estate was caught, and he admitted having set fire to the forest. He was tried by the Deputy-Commissioner and fined Rs. 200, and the two peons who were with the Dewan and carried out his order to fire the forest were sentenced to a month's imprisonment each. No fire entered these forests from outside.

36. In the Gauháti division, on the contrary, all the fires were kindled at a distance outside, and driven by the wind into the reserves. In the case of the Milmillia forest, the fire was blown from the top of the adjoining hill right into the reserve, and afterwards, even with difficulty, stopped at the Kulsi river.

37. In the Tezpur division fire-protection was successful, with the exception of a small portion of the Kholahat reserve, in the Nowgong district, about 120 acres, which was burned. The origin of this fire could not be traced, but must have been mischief, as it commenced in a spot adjoining a tea-garden, which latter always is a first-rate protection against fire.

Jhúming.

38. Jhúming of the hill tribes has been watched over as zealously as usual. With the improved demarcation and better organization of the forests into defined manageable ranges and beats, this danger will grow steadily less every year. It is in the Golághát and Cachar divisions chiefly that great vigilance has to be used, and on this, as on all other accounts, it is much to be regretted that the Cachar division was left so long without a Forest Officer.

In the Golághát division the officer in charge ascended the Dayang river and Rengmapani to warn the villagers against jhúming in the Government reserved forests.

Breaches of forest rules.

39. The number of prosecutions for breaches of forest rules are exhibited in the prescribed statement (Form 48) attached to this Report.

Creeper-cutting.

40. The clearing of creepers in Sál forest extended in the Gauháti division over an area of 1,760 acres in the Bardwar reserve at a cost of Rs. 168-10, and smaller areas were gone over in the Matiakhar, Pantan, and the Kulsi plantation reserves as well. Mr. Mein deserves credit for the attention he has paid to this important work for some years past.

In the Tezpur division, an area of 554 acres in the Balipara Sâl forest was gone over and had the creepers on it cut, at a total expenditure of Rs. 60-0-6. It is to be regretted that in the Goálpára division it was found again impossible by the Divisional Officer to start this very necessary work for want of labour.

Nahor and Ajhar sowing in the Nambor reserve.

41. The sowing of Nahor and Ajhar in the Nambor reserve was continued, and has been most successful during the year. The extension of this experiment comprised an area of 10 acres, and was carried out, in the same manner as in previous years, by having the useless scrub and undergrowth cleared away, and sowing the seed either in prepared planting-spots, or on small ridges or lines of earth thrown up for the purpose. To facilitate constant supervision, this experiment is being carried out on either side of the Samaguting road running through the Nambor forest, and the chief road for the Divisional Officer to use when going through the forest.

Nahor, it appears, can stand much shade, and rather prefers it when young, whilst Ajhar, on the contrary, requires more light, and, although it will be necessary to keep the latter as close together as is consistent with its free development, yet it is quite evident that it must have plenty of light from above to grow well.

It has not as yet been satisfactorily explained why Nahor seed is, comparatively speaking, scarce in the Nambor forests, when it can be had in abundance from trees growing in the open; but, should this turn out to be the usual thing, instead of a mere local occurrence, it would show all the more the necessity for aiding the natural regeneration of the forest by artificial sowings.

The total expenditure on this experiment during the year has been Rs. 254-8.

Kulsi plantation.

42. The area under Caoutchouc-trees at the Kulsi plantation, in the Gauháti forest division, was extended by 9 acres in a separate block, on the right bank of the Kulsi river, and in the immediate vicinity of the plantation bungalow. The young trees raised from cuttings were planted on small mounds and succeeded well.

The old plantation of 86 acres was surrounded by a strong fence, as the smaller fences made around each tree separately were found not strong enough to resist the deer, who, as in former years, were very destructive to the young rubber-trees in September and October. The total length of the fence constructed was 9,500 feet at a cost of Rs. 651-1-6, or Rs. 6-13-8 per hundred running feet.

The attempts to raise seedlings of *Ficus elastica* at the Kulsi have been more successful than in former years,—over 500 seedlings are reported to be alive, and more coming up.

43. The Teak plantations at the Kulsi were extended by 20 acres during the year, and Mr. Mein's survey of the older blocks shows an excess of the estimated area by 45 acres, bringing up the total area under Teak at the end of the financial year to 138 acres. The growth of the trees continues healthy in all the plantations, and, although the borer still prevails, the damage done by it is not at all serious.

44. In the Sisu plantation, a portion damaged by floods in former years was planted up with large transplants raised in a nursery, and has done well. The area under Sisu remains unaltered.

Charduar plantation.

45. A great amount of excellent work was done in the Charduar plantation, in the Tezpur division, and Mr. Copeland deserves great credit for the way he has managed this, and overcome the difficulty of obtaining labour, which only the year before had been reported as unsurmountable, and a reason against the continuance of the plantations in this division.

The Caoutchouc plantation in the Charduar had two new compartments, Nos. 9 and 10, comprising an area of 230 acres, prepared for planting by the cutting of lines 40 feet in width and 100 feet apart. Although a considerable expenditure has been incurred on this work, the area will not be entered in the plantation statement (Form No. 46) until actually planted.

46. The planting in Compartments Nos. 1, 2, 7, and 8 was completed, adding an area of 112 acres to the Charduar plantation; besides which, all the vacancies were filled up in the remaining compartments, and not less than 4,435 mounds were prepared for interplanting, so as to reduce the distances between the trees in the lines to half, *viz.*, 25 feet instead of 50 feet.

47. The growth of the trees has, generally speaking, been excellent and most vigorous. In line No. 30, Compartment 4, a seedling planted in 1875 now measures 28½ feet in height, and a cutting of the same year in the same line and compartment

measures 28 feet 10 inches, and in line No. 22, Compartment No. 2, a seedling planted in 1876 in an earthen vessel on the stump of a tree measures 14 feet in height. All the planting and compartment lines were well kept open and cleared sufficiently for ponies to be used on them.

48. Two maunds of rubber-seed, collected in the Gauháti division, were sown on 31 beds in the usual manner described in former Annual Reports, between the 8th of February and the 11th of March, 1879, and it first germinated on the 18th of April. The seedlings are as yet too small to be counted.

There are 32,094 old seedlings in the nurseries, and their average height is over 3 feet, as well as 2,642 cuttings of an average height of 10 feet. The latter are all being transplanted now into the lines as speedily as possible. The nursery for bedding out the young seedlings was increased by 2 acres.

49. As in former years, the deer proved a great pest again, especially in September and October, and, since all the small fences formerly constructed around each tree proved insufficient to prevent the trees being bitten, a strong fence was constructed around the whole plantation (compartments Nos. 1 to 8), measuring 31,800 running feet, at a cost of Rs. 2,264-3-3, or Rs. 7-1-11 per 100 running feet. This has answered admirably, and it is hoped there will be no more of this, the greatest of our difficulties, in rubber-planting.

Bamuni Hill plantation

50. No extension of the small experimental rubber-plantation on the Bamuni Hill near Tezpur was attempted, the young trees are healthy, but grow very slowly, and on this account no extension is desirable. The fence was repaired, the jungle around the young trees kept down, and vacancies filled up.

Planting of Sâl.

51. The experiment in planting Sâl was continued on a very small scale, the seed sown under grass covers germinated well; but the seedlings, 139 in number, are very small, and it is not intended, for the present, to spend any more money on this experiment.

Shillong plantation.

52. The *Eucalyptus* in the small experimental plantation at Shillong have again suffered considerably from frost, and there is no doubt that, except in very favourable situations, this will always be a drawback to their cultivation. As stated in last year's Report, it is hoped to overcome this difficulty partly by preparing larger holes for the plants, and keeping them for a year in bamboo baskets, which has answered very well up to the present. It is quite certain that *Eucalyptus*, to grow well, requires more cultivation in the way of keeping the grass down and the ground open around the trees than is ordinarily given to forest plantations. This is evidenced by their rapid growth in some of the gardens of Shillong. *Eucalyptus globulus* is by far the fastest-growing species cultivated in the Khási Hills, and next to it comes *Eucalyptus rostrata*.

53. The Walnut, although extremely slow in growth, looks healthy, whilst, as regards all the exotic coniferous trees experimentally planted in the Shillong plantation, with the exception of *Cryptomeria Japonica*, they are not worth cultivating, because they are so slow in growth, and all money available had much better be spent on *Eucalyptus globulus* and the indigenous Oaks (*Quercus Griffithii and Quercus serrata*) than on the pines from the North-Western Himalayas or from Europe.

54. The young trees, oaks and Khásia pine, sown on the lands adjoining the streams which furnish the water-supply of Shillong continue to grow very successfully, but only 10 seers of the former and 30 seers of the latter were sown, since it was a very bad year for seed generally, and only small quantities procurable at very high prices.

Cinchona plantations.

55. The small patches of Cinchona plantations below Nungklao, in the Khási Hills, were inspected by the Deputy-Conservator, and, whilst *Cinchona officinalis*, in Plantation No. 2, appears to be healthy, the other two species (*Cinchona succirubra* and *Cinchona micrantha*) all present a very sickly appearance, and most of them have only a few leaves at the extremities of the branches. Both species flower sparingly, and form no good seed-pods. This condition of the plants is ascribed not so much to the climate and altitude as to the very steep slope and shallow surface soil resting on rock, which does not retain sufficient moisture to suit these plants. The plants of *Cinchona succirubra* near Jirang look very much better, and both altitude and situation, as well as the soil in that place, seem to be more suited to this species than in the Nongklao plantations. Flowers and seed were, however, even here very scarce, and no good seed was found.

Makum plantation

56. The growth of Teak in the small experimental plantation at Makum continues very much the same as before. As long as the trees are not attacked by the borer, they grow equally well as at the Kulsi

plantation; but the trees killed by the borer are very numerous, so much so that of the original four acres only about two acres remain fairly stocked with trees. This is attributed to the greater moisture at Makum, which seems to favour the vitality of this insect, and also has the effect on the trees that they keep their leaves much longer, in fact, they keep the old leaves almost until the young leaves are again developed. The lower average temperature prevailing at Makum has, however, not retarded the growth of the Teak-trees up to the present.

Roads and bridges.

57. All existing roads and footpaths were cleared during the season and bridges repaired where necessary. In the Gauháti division considerable damage was done during the rains by an unprecedented flood carrying away part of the Kulsi plantation road and several bridges. As already stated, the road running along the southern boundary of the Charduar plantation reserve was extended by two miles. All the other roads in the Tezpur division were also cleared and repaired for the use of ponies during the working season. In the Golághát division, the different roads connecting the control stations on the Dayang and Dáigurung with the Golághát and Samaguting road were put in repair. For the present, the lines of communications in the Assam forests consist, with few exceptions, of bridle-paths only, since carts are seldom, if ever, used away from the main roads of the country, and the construction of cart-roads is very costly, in fact, beyond the present means of this Department, since all such roads would require a comparatively large number of expensive bridges. In the rains many parts of the forest are only accessible on elephants or by boats.

Buildings.

58. The same attention as in former years has been paid to providing proper shelter for forest officers and subordinates, which to a great extent counterbalances the unavoidable exposure to climate in the forests. The houses at Dhubri, the Kulsi plantation, Bhairabighat, and the Charduar plantation, have all been kept in proper repair. The building of the new forest house at Golághát is not quite completed, but very little remains to be done. All the smaller inspection-huts in the Goálpára and Golághát divisions were put into good order, and the ground kept clear around to render them healthy and to prevent fires. In the Gauháti division two new inspection huts were built,—one for the forest-ranger at Borobokra, in the Pantan reserve, and one at the Nagarbera depôt. In the Tezpur division, a number of new huts with raised floors were built at the Charduar plantation for the working establishments, to ensure better health in the rains.

Yield and Working.

Work by Government Agency.

59. Attention has frequently been drawn by the Government of India to the necessity of showing clearly the expenditure incurred on, and the receipts derived from, timber worked out from the forests by departmental agency, and the statement in Form No. 58 is intended to show the expenditure on such operations; but, as there is some difficulty in apportioning the expenditure on timber which does not reach the depôt, and is not sold in the same financial year in which it was felled, it appears advisable to show periodically the result of these operations for a number of years together, and this has been done in the following table for the last five years:—

Value of timber in depôt on 1st of April, 1874, and half value of live and dead stock.	Value of timber sold from 1874-75 to 1878-79.	Value of timber in depôt on 1st of April, 1879, and half value of live and dead stock.	Expenditure on timber from 1874-75 to 1878-79.	Remarks.
Timber. Rs. 3 032 *Live and dead stock.* Rs. 6,767	Rs. 57,440	*Timber.* Rs 47,952 *Live and dead stock.* Rs. 35,298	Rs. 97,136	The amount entered in the 4th column includes expenditure under A1. and such portions of A111., V1., and B as must fairly be debited against departmental timber operations, also one third of the cost of direction for those divisions in which timber work is being carried on by direct Government Agency.

If the amount entered in the first column is deducted from the amounts shown in the second and third columns, it leaves a value of Rs. 1,30,891, against the expenditure of Rs. 97,136, entered in the fourth column, or the net value of the departmental timber works during the last five years, which is Rs. 33,755 in favour of these operations.

60. The quantities of timber in hand at the beginning and end of this period, and the quantities sold, were as follows:—

Quantity of timber in depôt on the 1st of April, 1874.	Quantity of timber sold from 1874-75 to 1878-79.	Quantity of timber in depôts on the 1st of April, 1879.	Remarks.
4,000 cubic feet.	60,520 cubic feet.	40,333 cubic feet.	The quantities shown in the first and third columns include timber in transit from one depôt to another, but not timber in transit from the forest to the depôt.

If the quantity shown in the first column is deducted from the quantity shown in the second and third columns, it gives a difference of 105,793 cubic feet. The cost of this timber has been Rs. 97,136, minus Rs. 35,298, the half value of live and dead stock, or Rs. 61,838, which makes the cost per cubic foot 9 annas 4 pie. The value of these 105,793 cubic feet of timber is Rs. 1,05,392, or 15 annas and 11 pie per cubic foot, giving a net result of 6 annas 7 pie per cubic foot in favour of departmental timber operations.

No felled trees remained in the forests on the 1st of April, 1874, and the number of trees felled from 1874-75 to 1878-79 was 5,983, and the number of trees remaining in the forest on the 1st of April, 1879, was 333.

This shows that about 5,640 trees were felled for the above 1,05,793 cubic feet of timber, and these trees, at the rates fixed for the time being by the Chief Commissioner, represent a value of Rs. 41,033. If to this the above Rs. 61,838 are added, we have the total amount of capital, *viz.*, Rs. 1,02,871, which, on an average, is employed for about 2 years, making the interest 1·22 per cent. per annum.

This plainly shows that such operations are not sufficiently remunerative, and only justifiable on the ground of either stimulating the trade in timber or of husbanding the timber required from the forests.

It is therefore intended not to extend timber operations by Government agency, and to leave the extraction of timber for export to timber-traders, wherever these men are enterprising enough to do this work, and willing to pay the prices fixed at present for the different descriptions of trees.

61. The number of trees felled by the department in 1878-79 was as follows:—

Goálpára division	1,434
Gáuhati „	449
Tezpur „	46
Golághát „	344
Total	2,273

They were of the undermentioned kinds:—

Sâl	827
Sam	48
Ajhar	1,208
Gunserai	15
Tita sappa	4
Poma	11
Lahiri Poma	3
Jia Poma	2
Kharjamu	58
Uriam	6
Hilika	47
Bola	8
Kathal Bola	9
Nahor	20
Hulluck	7
Total	2,273

The conversion into logs and boats, and the collecting of dead wood in the forest, were the following:—

	Number of logs.	Number of boats.	Pieces of dead wood.
Goálpára Division	1,952	...	...
Gauháti „	1,223	8	18
Tezpur „	102	..	522
Golághát „	722	10	...
Total	3,999	18	540

The number of scantlings cut during the year was the following:—

Golághát Division	483

The following timber, exclusive of dead wood, was brought to depôt:—

	Number of logs.	Number of pieces.	Number of scantlings.	Number of boats.
Direction Office	...	...	1	...
Goálpára Division	565	...	16	...
Gauháti „	1,062	...	8	8
Tezpur „	341	1	...	...
Golághát „	528	203	71	10
Total	2,496	204	96	18

Of the 565 logs brought to depôt in the Goálpára division, 329 logs were transferred from the Gauháti division.

Dead Sâl-wood was worked out of the forests and brought to depôts by Government agency in the following divisions :—

Gauháti Division	18
Tezpur „	401
Total	419

The timber sold during the year was the following:—

	Logs.	Pieces.	Scantlings.	Boats.
Direction	...	...	1	...
Goálpára Division	160	...	16	...
Gauháti „	21	25	...	...
Tezpur „	390	5	361	...
Golághát „	...	65	16	8
Total	571	95	394	8

The following is the timber used by the Department or lost:—

	Used by the Department.				Lost.
	Logs.	Pieces.	Scantlings.	Boats.	Logs.
Goálpára Division	21	...	...	...	1
Gauháti „	1	16	...	1	...
Tezpur „	101	...	57	...	10
Golághát „	5	90	9	...	...
Total	128	106	66	1	11

62. In the Goálpára division arrangements were made with Mech duffadars to work out timber by contract from the Ripu and Sidli forest to the Kokrajhar, Burimukh, and Rajadabri depôts at about 3½ annas per cubic foot, and from these depôts the timber was again floated by contract to the Dhubri depôt at about 1½ annas per cubic foot, making the cost of timber from the Eastern Duars forests at the Dhubri depôt about 5 annas per cubic foot, exclusive of the cost of storing and supervision in the depôts.

63. The timber from the Gauháti division was floated to Dhubri from the Kukurmara depôt at about 3 annas per cubic foot, and from the Nagarbera depôt at about 2 annas per cubic foot. As the average cost of working out timber from the Pantan forest to these depôts has been 8 pie to Kukurmara and 1 anna 4 pie to Nagarbera, it makes the cost of timber at Dhubri about 3½ annas per cubic foot, exclusive of the cost of storing and supervision in the depôts.

The total quantity of timber brought to the Dhubri depôt was :—

	Logs.	C. ft.
From the forests of the Gauháti Division	329	5,592
Ditto ditto Goálpára „	236	1,742
Total	565	7,334

64. An auction sale was held in Dhubri on the 15th of January, but it was not largely attended, and only 60 logs were sold at the upset price out of the total number of 451 logs, they realized Rs. 773-9-9.

There was, however, one encouraging feature in the sale, namely, that a Bengali timber-trader bought several lots at a rupee and at 12 annas per cubic foot, instead of bartering for weeks about the price, as has been the custom hitherto amongst the native timber-dealers in the Goálpára district.

The logs were classed at the sale as follows, and this classification and the prices charged remain the same for the present :—

Class.	Girth of logs.	Length of logs.	Upset prices.
			Rs. As. P.
I. Sál	over 4′	over 15′	1 4 0
II. „	3′ 6″	„ 10′	1 0 0
III. „	under 3′ 6″	under 10′	0 12 0
IV. Other woods	any	any	0 12 0

It is contemplated by a European firm to establish a steam saw-mill at Dhubri, which, if successful, will stimulate timber sales.

65. In the Gauháti division there is at present little or no demand for timber, except for local requirements, since the Bengal timber-traders come but very rarely as far as Kámrúp, which is the reason that nearly all the timber is sent to the Dhúbri depôt by this department.

The station of Gauháti is supplied by the Forest Department from the Rani forest, in charge of the District Officer.

66. As stated in last year's report, timber operations in the Tezpur division are limited to local requirements, and only 46 trees were felled.

67. In the Golághát division there are 526 logs of Ajhar and other kinds in depôt, the greater part of which it was intended to float to Dhubri, but the boatmen were so dilatory about getting from Dhubri up the Brahmaputra that by the time they reached the Dhansiri river it was so late in the season that there was not water enough at the mouth of that river for boats laden with timber to get over the shallows, and consequently they had to return without timber; no loss, however, occurred to the Department.

The sawing of Ajhar planks for bridges and of Nahor sleepers for experiments by the Northern Bengal State Railway in the Nambor forest came to a sudden standstill by an outbreak of cholera of a very virulent type among the sawyers, which caused a panic, and induced these men to leave their work without even burying the dead. The latter was attended to by the Divisional Officer as soon as the news reached him.

68. The following rules were laid down during the year by the Chief Commissioner for the guidance of the Forest Department and the Department Public Works, regarding the transfer of timber:—

(1.) Public Works Department and Forest Department must agree upon some specification of limits of dimensions of what is to be regarded as timber suitable for ordinary building purposes.

(2.) Public Works Department are not bound to accept timber which does not come up to this specification, and may reject without extra charge.

(3.) Forest Department will notify to Public Works Department, two months before usual time of submitting indents, the price to be charged for ordinary timber as above during the next ensuing year.

(4.) If such rate is higher than Public Works Department can get such timber for elsewhere, they may go into the market, or ask for a re-consideration of the rate.

(5.) In the case of timber specially selected from a depôt for extraordinary requirements, the rate of paying 25 per cent. extra for selection to remain in force, or special terms to be separately agreed upon.

69. The survey of all the timber-depôt lands held by the Forest Department has been completed, and maps of these lands been filed in the Direction Office as well as in the Divisional Forest Offices. The description of these lands is recorded in a register attached to this Report, Appendix IV.

Work by purchasers.

70. But little dead wood remains in the Sâl forests of the Eastern Duars, so that the sale of this description of timber has decreased considerably.

The number of trees sold standing in the forest has increased largely in the Goálpára division, and was 314, as compared with 20 sold last year.

To stimulate the working out of timber by the Mech duffadars, who have been engaged in this trade from time immemorial, one of these men has been allowed to fell 60 Sâl-trees, on the understanding that he paid half their price before felling and the other half after the timber reached the depôt. As these men store their timber in the Forest Department depôts, there is no risk about this; and, as the man who tried the experiment this year has done very well, it is hoped that more will follow his example, and this Department be relieved to some extent of the necessity of working out the timber by its own agency.

The sale of trees for canoes or dugouts has also increased from 20 trees in 1877-78 to 254 trees in 1878-79.

71. There has been a considerable increase in the sale of trees and dead wood from the forests of the Gauháti division to purchasers, the quantities sold were the following:—

Sâl-trees, @ Rs. 10 each	346
Other trees, @ Rs. 6 „	7
Dead Sâl posts	1,389
Small pieces	282

On account of the raising of the price of Sâl-trees from Rs. 8 to Rs. 10 per tree in 1877-78, timber-dealers slackened their work, but they now find that there still remains good margin for them, and the trade has quite recovered itself.

72. The number of trees sold standing in the forests in the Tezpur division was 61, as compared with 34 sold in the previous year.

73. The number of trees sold standing in the forests of the Golághát division was 3, as compared with 5 in the previous year. Besides this, 1,062 maunds of charcoal were manufactured in the reserves, and paid revenue at the rate of 2 annas per maund.

74. In the Sibságar division, no forests have as yet been placed in charge of the Forest Officer.

75. The number of licenses granted in the Cachar division was the following, as compared with the two previous years:—

		1876-77.	1877-78.	1878-79.
(1.)	Licenses of elephants to drag timber	77	197	185
(2.)	„ for cutting timber, bamboos, canes, and grass ..	1,511	2,198	2,774

The undermentioned forest produce passed and paid revenue at Sealtek, in Cachar:—

Logs.			Posts and planks.			Tea-boxes.		Bamboos.		Canes.		Reeds.		Grass.		Charcoal.	
Number.	Cubic contents.	Amount.	Number.	Cubic contents.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number of rafts.	Amount.	Number of rafts.	Amount.	Number of maunds.	Amount.
		Rs. As. P.			Rs. As. P.		Rs. As. P.		Rs.As. P.		Rs. As. P.		Rs. As. P.		Rs. As. P.		Rs. As. P.
5,883	98,912	14,405 2 3	522	544	145 3 6	792	49 8 0	420,695	526 8 9	26,752	360 8 3	93	234 7 3	214	535 15 9	116	14 8 0

Financial Results.

Summary of receipts and expenditure.

76. There has been a considerable increase in the gross receipts, as well as in the surplus, during the year under notice. The increase in expenditure has been in proportion. The receipts and expenditure of the year in the different divisions and by Civil Officers are shown in the annexed tabular statement (Form No. 49).

Transactions of the year.

77. The transactions of the Forest Department in Assam during the year are shown below, under the three great heads of "Departmental timber operations," "Other revenue," and "Formation, protection, and improvement of the forests." These figures were compiled in the same manner as was done last year, and which had been approved of by the Government of India, except that part of the expenditure of the Direction Office was only debited to departmental timber operations for those divisions where timber work is actually carried on by direct Government agency :—

		Receipts.	Charges.
		Rs.	Rs.
I.	Departmental timber operations	12,077	31,367
II.	Other revenue	1,49,702	24,225
III.	Formation, protection, and improvement of the forests.....	.....	70,435
	Total	1,61,779	1,26,027

These figures are based on the careful distribution of the expenditure in each division, which will be further explained in Chapters II. and III. of this Report.

The difference in the value of stock at the commencement and close of the year for the whole department is Rs. 46,259 in favour of the year.

Comparison of revenue with former years.

78. A comparison between the receipts of the year under report and the previous one gives the following result:—

Receipts, 1877-78. Rs.	Receipts, 1878-79. Rs.	Increase. Rs.
1,34,325	1,61,779	27,454

This increase is due chiefly to the increased sale of timber standing on land surrendered for cultivation, and the more careful collecting of this revenue. The greatest attention is paid to this, as this revenue will be the chief standby for the Forest Department, because the reserved forests, and specially the more accessible ones, have comparatively little mature timber left in them at present. The increase in the Cachar division is due to the recovery of the timber trade; but yet there is a great waste,

even now, of legitimate forest revenue, in consequence of the exemption of the Cachar district from payment for the timber and other forest produce used. The matter has been brought to the notice of the Chief Commissioner.

The slight increase in receipts in the Tezpur division has been brought about by a comparatively large amount of revenue having remained outstanding at the end of the previous year, which was realized during the current year,

The falling off in receipts in the Direction Office is due, as in last year, to a smaller amount of timber having been worked out by public departments from the forests under District Officers, which revenue is adjusted by book-transfer in the Direction Office.

In the Goálpára division the falling off in revenue is owing to nearly all the dead wood having been worked out of the forest in the previous three years, and a smaller demand for timber from the Dhubri depôt, because the District Engineer at Rangpur, as well as the Executive-Engineer at Dhubri, finds it more convenient to obtain ready-sawn scantlings of Teak from Calcutta, not because they are cheaper or better, but because labour is very difficult to procure and most expensive in this part of the country.

Against this falling off in receipts must, however, be reckoned the increase in the value of timber on hand at the end, as compared with the beginning, of the year, which, if the timber in the forest depôts is valued at its cost only, and exclusive of the timber received from the Gauháti division, is more than the difference in the receipts between this and the previous year; and there is no doubt that the sales in the Dhubri depôt are so small, because the depôt and the sale of timber by the cubic foot are new to the timber-dealers, which it will take them three or four years to get accustomed to; besides, these men have had it pretty much their own way in the Gáro Hills up to the present, which will not be continued after this. The falling off in receipts in the Gauháti division is really only nominal, since the value of the timber sent to Dhubri is much more than the difference in revenue realized this year, as compared with 1877-78, and under "II.—Timber removed from the forests by purchasers" there is a considerable increase.

In the Golághát division there is next to no local demand, so that the receipts will not be large for some years to come, until the demand for Ajhar and Nahor increases and higher prices are offered for these kinds of timber. The difference in the value of timber at the beginning and end of the year is more than the decrease in revenue.

Comparison of expenditure with previous year.

79. The following table exhibits in detail the expenditure during the year, as compared with that of the previous year:—

Budget Heads.	1877-78.	1878-79.	Increase.	Decrease.
A.—Conservancy and Works.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
I. Timber and other produce removed from the forests by Government agency..	7,598 3 1	12,981 2 8	5,382 15 7	.....
II. Timber and other produce removed from the forests by consumers or purchasers.	2,675 3 1	610 7 5	.....	2,064 11 8
III. Confiscated drift and waif-wood	14 6 0	16 8 0	2 2 0	.....
IV. Revenue from forests not managed by Government	.....	.....	.....	.....
V. Rent of leased forests and payments to shareholders in forests managed by Government.	50 0 0	50 0 0	.....	.....
VI. Live and dead stock	12,256 0 2	16,611 13 8	4,355 13 6	.....
VII. Communications and buildings	7,870 8 3	6,942 10 11	.....	927 13 4
VIII. Demarcation, improvement, and extension of forests	16,192 7 5	25,979 11 10	9,787 4 5	.....
IX. Miscellaneous	2,297 2 9	1,326 9 5	.....	970 9 4
Total of A.—Conservancy and Works	48,953 14 9	64,518 15 11	19,528 3 6	3,963 2 4
B.—Establishments.				
I. Salaries	44,263 7 11	51,448 7 7	7,184 15 8	.....
II. Travelling allowance	4,977 12 6	6,988 3 9	2,010 7 3	.....
III. Contingencies	2,091 5 6	3,071 7 8	980 2 2	.....
Total B.—Establishments	51,332 9 11	61,508 3 0	10,175 9 1	.....
Grand Total of Expenditure	1,00,286 8 8	1,26,027 2 11	29,703 12 7	3,963 2 4

The increase under "I.—Timber and other produce removed from the forest by Government agency" has taken place in the Goálpára, Gauháti, and Golághát divisions on account of an increase of this work, which was chiefly experimental, and has shown that, although timber operations may be carried on by this department with profit, the net revenue made by doing so is very small, and much of the establishment's time is required to attend to this work, which could be spent better in looking after the conservancy and improvement of the forests, if the working out of timber was left to private enterprise.

The decrease under "II.—Timber and other produce removed from the forests by consumers or purchasers" is the consequence of the Chief Commissioner's ruling that receipts for timber on land allotted for purposes of cultivation are to be paid direct into the treasury, and not to the mouzahdars.

The expenditure under "III." is about the same as in the previous year, and requires no explanation. There is no expenditure under "IV." and that under "V." is the same as in the previous years.

Under "VI.—Live and dead stock" the increase is accounted for by the purchase of elephants and buffaloes in the year under report, whilst none were purchased in the previous year.

The expenditure under "VII. (*a*) Roads and bridges" is slightly more than in 1877-78, and some increase on this account must be expected for a number of years to come, since the present roads are not sufficient to render the forests as accessible as they should be. The expenditure under "(*b*) Buildings" is less, because the contemplated construction of a forest house at Cachar could not be carried out on account of the reductions of the budget estimate.

Under "VIII. Demarcation, improvement, and extension of forests," the increase has occurred in all except the Gauháti division, and the largest expenditure has been in Cachar, where there are many private estates adjoining or included in the reserved forests. This work has been pushed on with energy, because it is all important that it should be completed as speedily as practicable.

The increase in expenditure under "(*c*) Surveys and working plans" has been slight, it is very necessary that the contents of the forests, as well as the topography of them, should be given correctly as soon as possible. The work is done cheaply and yet efficiently, and supplies a great deal of most valuable information without which rational forest conservancy is impracticable.

The increase under "(*d*) Plantations" has been considerable on account of the vigour with which the Rubber plantations have been pushed on, and the construction of a new fence around the whole plantation, both at the Kulsi and the Charduar, as it was found impossible to keep out the deer by any other means. The decrease under "(*f*) Other works" is trifling, and requires no explanation.

Under "IX. Miscellaneous," the expenditure has been less, and is partly accidental, and so small that further explanations are unnecessary.

The expenditure under "B. Establishments" has increased under "I. Salaries," on account of the appointment of an additional officer to the Province and the organization of the Sibságar forest division, as well as by the higher pay drawn by four officers in consequence of promotion. The increase under "II. Travelling Allowances," is accounted for in the same way. The increase under "III. Contingencies" is chiefly due to the charges for office rent having again been paid this year by the Forest Department instead of from Provincial funds.

Receipts and charges in the different divisions.

80. The following table exhibits the receipts and expenditure in the different divisions:—

Name of Divisions.	Receipts.	Expenditure.	Surplus.	Deficit.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Direction	1,374 8 0	17,449 1 8	.....	16,074 9 8
Goálpára Division	5,134 13 6	21,275 11 3	.....	16,140 13 9
Gauháti „	6,164 11 6	24,217 12 1	.....	18,053 0 7
Tezpur „	5,672 8 6	28,307 3 7	.....	22,634 11 1
Golághát „	1,332 6 9	12,483 7 11	.....	11,151 1 2
Sibságar „	.....	5,573 15 2	.....	5,573 15 2
Cachar „	19,840 2 4	8,137 1 4	11,703 1 0	.....
Civil Officers	1,22,260 2 8	8,582 13 11	1,13,677 4 9	.....
Total	1,61,779 5 3	1,26,027 2 11	1,25,380 5 9	89,628 3 5

From these figures, it will be seen that the only divisions which show a surplus are those of Cachar and Civil Officers, as was the case last year, and these are also the divisions in which the largest amount of revenue is realized. The expenditure on protection and improvement is, on the contrary, greatest in those divisions where the forests have been very much overworked in former times, or where, as in the case of the Tezpur division, the situation of the forests is best suited for the particular work of improvement carried out, such as the Caoutchouc plantation in the Charduar, which causes the deficit to be so much larger in these divisions than it otherwise would be. Still, for all this, there is steady improvement in the demand for forest produce from the reserves, and, although it will take time for the Bengal timber-dealers to get accustomed to the altered system and the higher prices now charged for trees and other forest produce, they are already arriving fast at the conclusion that, although they do not get all the profit to themselves, as in former times, yet there remains a handsome margin in their favour, well worth the employment of capital on timber works.

Excess expenditure on the reserved forests.

81. As regards the distinction between the receipts and charges from the reserved forests in charge of Forest Officers and the protected and district forests in charge of District Officers, this is only temporary and entirely artificial; yet, as long as the difference is made, it will be well to record the receipts and charges for each separately. They stand as follows:—

	Receipts. Rs.	Charges. Rs.
Direction Office	1,374	17,449
Reserved forests in charge of Forest Officers	38,145	99,995
Protected and district forests in charge of Civil Officers...	1,22,260	8,583
Total Rs.	1,61,779	1,26,027

Accordingly, the excess expenditure on the reserved forests in 1878-79 was Rs. 72,567, which gives a rate of Rs. 36-9-6 per square mile, or 0·91 annas per acre, if two-thirds of the outlay on account of direction is included.

Deducting from the outlay incurred on the management of the reserves, as shown above, the capital expenditure on plantations and the increased value of stock, the excess expenditure on reserved forests is reduced to Rs. 6-8-2 per square mile, or 0·16 annas per acre, which is well spent,—for, considering the tea industry alone, Assam could not prosper without a fair extent of forests, and the more thoroughly their management is carried out the safer is the return for the money invested, for there is nothing so mischievous as a superficial observation of forests and their condition, which is only too apt to induce men to arrive at the erroneous conclusion regarding the condition of forests so often heard,—that they have lasted up to the present without care, and will therefore last for ever. The exhausted state of nearly all the forests in the Eastern Duars and the Gáro Hills is a deplorable case in point.

CHAPTER II.

RESERVED FORESTS.

GOÁLPÁRA DIVISION.

Area and Boundaries.

82. The area of the reserved forests in the Goálpára division remained the same. They were re-gazetted in accordance with Section 34 of the Indian Forest Act of 1878. A change was made in the southern boundary of the Ripu reserved forest, substituting natural boundaries, such as streams, for a survey line, which latter it was found difficult and costly to maintain. The area of the Ripu reserved forest was not affected by this change of boundary.

Proposed reserves.

83. Proposals were submitted and gazetted under Section 4 of the Indian Forest Act of 1878 in the *Assam Gazette* of the 1st February, 1879, page 106, regarding the following areas:—

(1.) The Jengasi-Choraidaka Sâl Forest, extending over an area of 2·7 square miles.

(2.) The Atcabari Sisu and Khair Forest extending over an area of 14·3 square miles.

Demarcation.

84. The correct boundary between the Guma Government reserved forest and the Parbatjuar estate was surveyed in accordance with the Deputy-Commissioner's orders by the District Kanungo, who also demarcated this boundary, and it was afterwards, on the 25th of March, 1879, declared, in the presence of the Deputy-Commissioner, the Divisional Forest Officer, and the representatives of the Parbatjuar Zemindars, to be the proper boundary.

The line was cut to a width of 30 feet, and 26 substantial boundary-mounds were erected at all the angular points on the line from Chacma to Birobila, and from the Tipkai river to the Aboljhura. The numbering of the posts will be done during the current year as soon as the map of the Guma forest, now under preparation, is completed.

85. The artificial boundaries of all the other reserves were cleared, and the boundary-mounds repaired where necessary.

Selection of reserves in the Gáro Hills.

86. The selection of reserved forests in the Gáro Hills was commenced by the Deputy-Commissioner and Mr. Fisher in Mouzah No. 4, and areas, amounting in the aggregate to about 22 square miles, were decided on. Further progress of this work in Mouzah No. 3 was not practicable, as the Deputy-Commissioner desired to have the boundary between the Mechpara estate and the Government land in that mouzah surveyed first. The work will be continued during the current year.

Survey of the Guma reserved forest.

87. The survey work in the Guma forest was continued and completed since the end of the financial year. The compartment lines were cut one mile apart and 20 feet wide in the first instance, which later on was changed to a width of 10 feet, as this was found sufficient for the accurate survey of the lines in this forest. The length of lines cut was altogether 47½ miles, dividing this forest into 35 compartments. The different classes of forests, as well as the jhuras or streams, footpaths, and all other topographical features, were carefully noted during these surveys, so that the map will give a clear idea of the nature of this forest, especially when supplemented by the valuation statements. The facility with which a map and valuation survey statement can be referred to render such documents infinitely superior to reports, which latter, to convey an equally good idea of a forest, have to be very clearly written, well arranged, and must contain an amount of detail, much of which can safely be dispensed with, when a map showing all the topographical features of a forest is available. The results of the valuation surveys have not been received as yet from Mr. Fisher, and will therefore have to be shown in next Annual Report.

Protection and Improvement.

Permanent establishment.

88. The permanent protective establishment in the Goálpára division remained the same, and, although more efficient than in former years, it has annually to be supplemented by temporary establishments to do good work.

Fire-protection.

89. The attempts made to protect the Sidli and Guma forests against fire have been failures this year. Both these forests had been perfectly isolated by broad external fire-strips, but both were set fire to inside, and, although every effort was made to discover the perpetrators who fired the Sidli forest, it was all in vain. Great efforts were also made to get the fire under, but the fearful dryness and strong westerly gales which blew in March and April rendered all attempts in this direction fruitless,—only a small area of about 1,400 acres has been saved.

In the Guma forest the same recklessness occurred, but the perpetrator was caught, he was one of the Dewans of the Parbatjuar Zemindari, and admitted the offence, and was fined Rs. 200 by the Deputy-Commissioner, whilst the two peons who were with the Dewan, and carried out his orders to fire the forest, were sentenced to a month's imprisonment each. Recklessness like this will, of course, only be discontinued from fear of the law, whilst the Forest Department must arrange even to limit the damage of such action to as small an area as possible by having internal fire lines to divide the forests into blocks.

90. It is evident that more money must be spent on this work in future to increase its efficiency, and to render the forests safe, even in very exceptionally dry years like the one under report.

Proposals to this effect were submitted by the Divisional Officer, and have been sanctioned by the Deputy-Conservator for the next season. The area protected successfully against fire in the Guma forest was only about 300 acres. It is not contemplated to extend fire conservancy to any of the other forests in the Goálpára division until perfect success has been attained in the Sidli and Guma forests.

91. Cases of forest offences continue very few, six only having been tried during the year, of which four were convicted.

Other improvements.

92. Creeper-cutting was again omitted this year, and the excuse made by the Divisional Officer is scarcity of labour, which, however, is not worse, if so bad, as in the Gauháti and Tezpur divisions.

No other improvements of the forests have as yet been attempted in the Goálpára Division.

Caterpillars.

93. Caterpillars were extremely bad in the Sâl forests, but no perceptible harm beyond the entire stripping of the trees has been done; still, even this must retard growth to some extent.

The effects of the ravages of these insects will be carefully watched over.

Roads and bridges.

94. There are as yet only a few bridle-paths in the Government reserved forests of the Goálpára division, they were cleared and made passable for ponies. A district road, now under construction, will run through both the Guma and Sidli reserved forests, and another one runs through the southern portion of the Ripu reserve. The inspection-huts at Garubasa, Patgaon, and Kokrajhar, as well as the forest house at Dhubri, were repaired.

Yield and working.

Work by Government Agency.

95. The endeavours made in former years to induce Mech duffadars or wood-cutters to work out timber for the Forest Department have been successful, and three of these men contracted during the year to fell and log trees in the Ripu and Sidli reserved forests, and to float the timber to the Kokrajhar, Burimukh, and Rajadabri intermediate depôts at the following rates:—

Length of logs.	Girth of logs.	Rate per log.			Remarks.
		Rs.	As.	P.	
12	Not less than 5′	3	0	0	
.....	Ditto 4′	2	4	0	For every foot or part of a foot which a log measures less than 10 feet, two annas were deducted.
.....	Ditto 3′	1	12	0	
10	Ditto 6′	2	8	0	
.....	Ditto 4′	2	0	0	
.....	Ditto 3′	1	8	0	

In addition to these rates, dugouts belonging to the Forest Department were allowed, when available, and, if not, hire at the rate of Rs. 8 per dugout for the season was paid instead.

The following table shows the work done by these men during the year, and the cost of it:—

Name of depôt at which logs were delivered.	Number of logs.	Amount paid to duffadar. Rs	As.
Kakrajhar	721	1,568	8
Burimukh	650	1,247	4
Rajadabri	220	432	8
Amount paid for boat-hire	...	96	0
Total	1,591	3,344	4

This is an average cost of Rs. 2-2 per log, and, taking them at an average of 10 cubic feet, it makes the rate per cubic foot about 3 annas 5 pie.

96. Contracts were entered into for the floating of timber from the above depôts, from Kukurmara and Nagarbera depôts of the Gauháti division, and Tezpur and Golághát to Dhubri, at the following rates:—

Place from which timber is to be floated.	Size of logs.	Rate per log. Rs.	As.	P.
Golághát	Logs 10 to 12 feet in length	5	0	0
Tezpur	Ditto	4	0	0
Kukurmara	Logs over 20 feet in length	3	8	0
	„ from 13 to 20 feet in length	3	0	0
	„ under 13 feet in length	2	8	0
Nagarbera	„ over 20 feet in length	2	8	0
	„ from 13 to 20 feet in length	2	0	0
	„ under 13 feet in length	1	8	0
Burimukh, Rajadabri, Kakrajhar	Logs 10 to 12 feet in length	1	0	0

The timber floated at the above rates during the year was the following:—

	Number of logs.	Cubic feet.
From Kukurmara and Nagarbera	329	5,592
„ Burimukh	98	995
„ Kakrajhar	138	747
Total	565	7,334

97. The boats sent up to Golághát from Dhubri were so late that there was not water enough in the Dhansiri river, and they had to return without timber. The contractor suffered the loss of money and the department the inconvenience of having to keep the timber for another year in the Golághát depôt where there is no sale for it.

Between the months of November and May no timber can be floated with the boats from Bengal and the North-Western Provinces, on the tributary rivers, but only from depôts on the Brahmaputra.

98. An attempt was made to sell the timber in the Dhubri depôt by public auction, but only few purchasers attended, although the sale had been extensively advertised in Calcutta, Dacca, Rangpur, and Mymensingh.

There were 451 logs arranged in lots of 10 logs each, and the upset prices fixed came in the aggregate to Rs. 8,167-13-9, but only 60 logs, containing 884½ cubic feet, were sold for Rs. 773-9-9.

The total sales in the Goálpára division amounted during the year to 160 logs, containing 2,371 cubic feet and 16 planks, a remnant from the building of the forest house, at a total value of Rs. 2,515-5-6.

The timber in hand was:—

	Logs.	Pieces.
At the commencement of the year	308	...
Received during the year from the forests of the Goálpára division.	236	16
Ditto, ditto, Gauháti division	329	...
Total	873	16
Sold during the year	160	16
Used by the department	21	...
Lost	1	...
Total	182	16
Balance remaining in hand at the close of the year	691	...

The difference in the value of timber at the commencement and close of the year, inclusive of timber transferred from the Gauháti division, was Rs. 4,019 in favour of the year.

99. The re-survey of the timber-depôts in the Goálpára division was completed, and maps prepared for record in the Direction Office and the Goálpára Divisional Office.

Work by purchasers.

100. Efforts were made to encourage the Mech duffadars to work out timber from the Government reserved forests on their own account; and, as an inducement to do so, one of these men was permitted to fell 60 Sâl-trees, paying only half the price before felling and the other half when his timber reached the Forest Department depôt.

The number of logs cut out of these 60 trees was 360, and they are valued at Rs. 10 per pair, or Rs. 1,800 for all the logs, which will leave the woodcutter Rs. 1,200 for his labour. This ought to be a sufficient inducement for more of the duffadars following this example, since they are well accustomed to this work, and can employ their time when not engaged in agricultural pursuits.

Besides the above 60 Sâl-trees, 254 of other kinds were sold standing in the forest for dugouts at Rs. 6 each, as compared with 20 trees sold in the previous year. Trees of sufficient girth and length of bole suited for this purpose are now only left near the Bhutan frontier.

Samples of the undermentioned kinds of wood were supplied to a European firm in Dhubri, with a view to ascertain in Calcutta the suitability of these woods for tea-boxes:—

Jarul—*Lagerstræmia Reginæ.*
Sam—*Artocarpus Chaplasha.*
Gunserai—*Cinnamomum glanduliferum.*
Gugura—*Schima mollis.*
Bandarkanda—*Duabanga sonneratoides.*

The amount of Rs. 94, outstanding revenue for 188 dead Sâl-posts from the Guma reserved forest was collected. Rs. 214 were also realized for 316 dead Sâl-posts sold from the Sidli reserved forest.

Financial Results.

101. The receipts and charges in the Goálpára forest division, as compared with the previous year, were as follows:—

		1877-78. Rs.	1878-79. Rs.
Receipts		9,553	5,135
Charges	A	8,493	10,780
	B	7,656	10,496
	Total charges	16,149	21,276
	Deficit	6,596	16,141

About half of the increase in the deficit, as compared with the previous year, is caused by diminished timber sales, and the other half by increased expenditure. The difference in the value of stock at the commencement and close of the year was Rs. 9,953 in favour of the year.

The value of timber transferred from the Gauháti to the Goálpára division during the year was Rs. 5,592.

The following table exhibits the transactions of the year in the Goálpára forest division:—

Receipts.			Charges.	
		Rs.		Rs.
I. Departmental timber operations.	I. and III.	2,325	A I., III., half of VI., and one-quarter of B.	8,373
II. Other revenue	II., IV., and V.	2,810	A II., IV., V., IX., one quarter of VI., and B.	3,279
III. Formation, protection, and improvement of the forests.	.....	.....	A VII., VIII., and quarter of VI., and half of B.	9,624
	Total	5,135	Total	21,276

This distribution of expenditure under the three great heads is the same as last year's, since no changes have taken place which would justify an alteration.

Gauháti Division.

Area and Boundaries.

102. The area of the reserved forests in the Gauháti forest division remains the same as in the previous year, they were re-gazetted in accordance with Section 34 of the Indian Forest Act of 1878.

Selection of reserves.

103. The selection of reserved forests along the Khási Hills boundary, as well as in the western part of South Kámrúp, was continued, and a number of detached Sâl forests, aggregating about 20 square miles, will be proposed as Government reserves. These forests have suffered very much from excessive fellings and fire, but require only rest and protection to recover.

Demarcation.

104. All the boundaries were cleared and boundary-mounds repaired. As they have been very substantially built, but little requires to be done to them every year, if they are properly looked after. In the Matiakhar reserve, 37 new boundary-posts, surrounded by mounds of the prescribed size, were added.

Survey of the Barduar Reserved Forest.

105. The valuation surveys were continued in the Barduar reserve, and an area of 7,131 acres completed, corresponding to blocks I. to IV., and a small portion of Block V. They extended over about 10 per cent. of the total area of these blocks.

The statement of valuation surveys (Appendix III.) shows the number of Sâl and Makria trees above 1 cubit on a hundred acres to be the following, if the grass land and the lower hill forest is excluded:—

BARDUAR RESERVE.

Block I.—First addition to the Barduar Reserve.

	Sâl.
Second-class trees, from 1 to 2 cubits	3,732
Third „ „ 2 to 3 „	283
Fourth „ „ 3 to 4 „	70
Fifth „ „ 4 to 5 „	14
Total	4,099

Blocks II., III., and IV.

	Sâl.	Makria.	Total.
Second-class trees, from 1 to 2 cubits	1,636	51	1,687
Third „ „ 2 to 3 „	770	47	817
Fourth „ „ 3 to 4 „	173	20	193
Fifth „ „ 4 to 5 „	21	10	31
Total	2,600	128	2,728

If the grass lands and lower hill forests are included in this calculation the number of trees above one cubit on a hundred acres is as follows:—

BARDUAR RESERVE.

Block I.—First addition to the Barduar Reserve.

	Sâl.
Second-class trees, from 1 to 2 cubits	2,020
Third „ „ 2 to 3 „	153
Fourth „ „ 3 to 4 „	37
Fifth „ „ 4 to 5 „	7
Total	2,217

Blocks II., III., and IV.

	Sâl.	Makria.	Total.
Second-class trees from 1 to 2 cubits	1,404	44	1,448
Third „ „ 2 to 3 „	661	40	701
Fourth „ „ 3 to 4 „	148	17	165
Fifth „ „ 4 to 5 „	18	9	27
Total	2,231	110	2,341

106. A map on the scale of 4 inches to the mile, showing the distribution of the different classes of forest and the position of all the lines along which these valuation surveys were made, as well as the external boundary and the position of each post and mound, was prepared by Mr. Mein, and a copy of it is filed in the atlas of the Direction Office.

107. The whole of this forest, with the exception of the grass land at the northern extremity, if thoroughly protected against fire and otherwise properly managed, is capable of becoming entirely stocked with Sâl by natural re-production from seed.

Besides the knowledge obtained by these valuation surveys of the contents of this forest, more topographical details have been ascertained and entered on the map, and lines for future roads, as well as the suitable limits of blocks, have been selected.

Protection and Improvement.

Permanent Establishment.

108. The permanent protective establishment in the Gauháti division remains the same as last year, and need not be strengthened until the new reserves are added to this division, it is as follows:—

1 Forest-ranger.
1 Forester (plantation).
12 Forest guards.

Fire-protection.

109. Fire-protection in the Gauháti forest division, where it has hitherto been so successful, failed this year also to a very great extent. Different from the Goálpára division, the fires here originated all outside at considerable distances from the reserved forests, but were driven by the strong westerly winds with great force and rapidity across the intervening country, and, everything being as dry as tinder, into the reserved forests. It proves that here also more money must be spent on this important work to render it effective, and that fire-strips perfectly clear, and not less than 200 feet, are necessary to prevent these fires. They are lighted year after year in the western part of South Kámrúp, in spite of the strictest prohibitions from the District Officer, which seem to be entirely disregarded.

Up to the 15th of March the forest had been successfully protected, when fire was blown from the top of a neighbouring hill into the Milmillia reserve, and all efforts made by the forest-ranger and his people, aided by the villagers from the neighbourhood, to get the fire under, proved without avail, and it was only with the greatest difficulty that it was kept from blowing across the Kulsi river and spreading into the plantation reserve.

The fire which got into the Pantan reserve was driven from the Bogai mouzah by a fearful gale, and entered the reserve near Borobokra, after counterfiring had been successfully carried out all the night under the superintendence of the Divisional Officer along a line three miles in length. It proved then impossible to stop it until it reached the Kulsi river and the Sisu plantation. At the latter place, again, counterfires were lit along the edge of the plantation, which were successful, and saved the Teak plantations and the bungalow from destruction.

In the Barduar and Matiakhar forests, the fires entered from the estate of the Lower Assam Company, after they had, on several previous occasions, been extinguished.

The area burned was as follows:—

Barduar reserve	2,000 acres.
Matiakhar	320 „

The men who lit the fire near the last of these reserves were arrested and prosecuted under the Forest Act, and sentenced to 14 days' imprisonment each.

The total area burned in the Gauháti division during the year under report was 16 square miles and 160 acres out of 48 square miles and 360 acres, the protection of which had been attempted.

The experience gained during the year, as regards fire-protection has been great in the same proportion as the danger was extraordinary, and there is no doubt that it has taught Forest Officers a lesson which will be of the greatest use in future efforts to protect the Sâl forests in the Gauháti division against fire; and, although the damage done is to be regretted extremely, the dangers, as they showed themselves this year, could not have been foreseen and understood without such an extraordinary dry season as the one under notice.

The total expenditure on fire-protection in the Gauháti division during the financial year under report has been Rs. 1,374-1, or Rs. 28-5 per square mile, or Rs. 42-4 per square mile if the burned area is not reckoned. The expenditure in the dry season of 1878-79 has been Rs. 1,423-10 for the total area, or Rs. 29-5 per square mile, or Rs. 44-0-11 per square mile, if the burned area is not reckoned.

The amount expended on fire-protection in the Gauháti division during the financial year was employed thus:—

	Rs.	As.	P.
On cutting and burning of fire-lines	754	0	6
On salaries of temporary fire-guards	559	4	6
On rewards to villagers	60	12	0
Total	1,374	1	0

Creeper-cutting.

110. The huge creepers so common in the Assam forests, and so very injurious to trees, inasmuch as they prevent the forming of a straight and cylindrical bole, are particularly bad in the Sâl forests, and the work of cutting them has now been carried on systematically for some years in

the Gauháti forest division. During the year under report this work was carried out in the Barduar reserve, Blocks I., II., and III., in connection with the valuation surveys over an area of 1,760 acres. The method followed was to march gangs of coolies through the forest between the survey lines, which answered well, and was easily checked.

Small areas were also gone over in the Matiakhar and plantation reserves.

The total expenditure on this work during the financial year was Rs. 182-5, or 1½ annas per acre.

Caoutchouc plantation.

111. An area of nine acres was planted during the year with Caoutchouc-trees on the right bank of the Kulsi river in the immediate vicinity of the plantation bungalow and adjoining the Teak plantation of 1875.

The young trees have nearly all succeeded, and made excellent growth. Countings made at the end of the dry season gave the following results:—

Number of planting-spots examined	204
„ of plants alive	187
„ of failures	17
Percentage of plants alive, 92 / „ of failures, 8	100

In the older plantation of 86 acres the deer proved as destructive as in former years, and, as the smaller fences made out of split bamboo around each tree were not strong enough to resist the deer, besides interfering with the free development of the young trees, a strong fence 6 feet high was constructed around the whole plantation, measuring 9,500 feet in length, at a total cost of Rs. 651-1-6, or Rs. 6-13-8 per hundred running feet. The trees bitten last year have since put out vigorous shoots, and it is hoped that we shall have seen the last of this, the greatest, and, in fact, the only remaining difficulty in the cultivation of Rubber-trees. Countings made since the end of the dry season in the old Caoutchouc plantation of 86 acres showed the following results:—

Number of planting-spots examined	1,910
„ of plants alive	1,672
„ of failures	238
Percentage of plants alive, 88 / „ failures, 12	100

The 600 cuttings referred to in last Annual Report were planted out in October and November, 1878, partly on vacancies in the old plantation of 86 acres, and the rest in the new plantation of 9 acres made this year. The experiment of raising *Ficus elastica* from seed was more successful this year at the Kulsi than formerly,—500 seedlings are reported to have been counted on the seed-beds, and more are still coming up. The number of cuttings in the nursery was 186.

The expenditure on Caoutchouc plantations in the Gauháti division during 1878-79 has been Rs. 706-4-3.

Besides this, Rs. 80 were paid on account of Rubber-seed collected for the Charduar plantation in the Tezpur forest division.

Timber plantations.

112. The new extension of the Teak plantations by 20 acres was, with minor exceptions, successful. The seed arrived from Burma in June, and was sown immediately at stakes 4′ × 4′, as everything was ready. On the hilly portion every alternate planting-spot was sown with Nahor (*Mesua ferrea*), but all this seed proved to be bad. The Teak germinated very irregularly all through the rains, and some of it has even lain dormant until the current year. Teak seedlings raised in a nursery from seed collected in Gauháti were also used, and succeeded well, a small portion of low land was planted with Tun (*Cedrela toona*) and Sisu.

Some damage was done by wild elephants entering the plantation; these animals become occasionally very troublesome at the Kulsi,—in this instance, they were got rid of by tying up the tame elephants of the department near this plantation. The extraordinary floods during the rains of 1878, breaking through the bund near the coolie-lines, did also some damage to the young Teak just germinating, but the Toon and Sisu seedlings seemed rather the better for it. The most of the vacancies in this low land were planted up with Sisu.

The vacancies caused by the bad Nahor seed were again filled up with good seed, which succeeded well, but for the porcupine, who again managed to find them out and eat a good many of them. The nursery-beds from which the Teak seedlings had been removed were again sown with Ajhar seed, which has succeeded splendidly, it is intended to use these seedlings also to interplant with the Teak on the lower portions of the plantation.

The countings made at the end of the season in the plantation of 1878 showed the following results on the small hill in the north-eastern corner of the plantation :—

Total number of planting-spots examined	723
Number of plants alive	552
„ failures	171
Percentage of plants alive, 76 / „ failures, 24	100

On the level ground to the west:—

Total number of planting-spots examined		648
Number of plants alive	Teak	140
	Ajhar	502
Number of failures		6
Percentage of plants alive, 99 / „ of failures, 1		100

The expenditure on this plantation during the year has been Rs. 1,008-5-6. The Teak plantations at the Kulsi were surveyed during the year, and the revised area, as ascertained by this survey, will be quoted below, instead of the estimated area given in former reports. It will be seen that these plantations cover an area of 118 acres, instead of 73 acres, as formerly reported.

Teak plantation of 1872 *and* 1873, *area* 41 *acres.*—These plantations are fully stocked, and the growth continues very vigorous, the clearing of climbers and cutting over of crooked and diseased poles was all that was required to be done. The borer is more numerous here than anywhere else, yet it has caused less damage than in former years, and none so serious as to require special measures to destroy it. Several perfect insects were procured by Mr. Mein during the year, and have been forwarded by him to the Indian Museum, Calcutta, for identification.

The following statement gives the average dimensions of the trees as ascertained by Mr. Mein:—

Compartment.	Number of trees measured.	Average height.	Average girth, breast-high.	Distances at which planted.	Remarks.
1872	50	29½′	9¾″	6′×3′	Seed direct.
„	100	33½′	11½″	6′×6′	Transplants 3″.
1873	100	28′	9″	6′×6′	Seed direct.
„	100	25½′	7″	6′×4′	Ditto.
„	100	34′	9″	4′×4′	Ditto.

The expenditure on these plantations during the year was Rs. 46-6.

Teak of 1874, *area* 17 *acres.*—The whole of this plantation was gone over and crooked or diseased stems cut back. The climbers were cleared, and some Teak-seed put down on blanks, but the latter did not germinate. The measurement of 100 trees showed the average size to be a height of 25 feet and a girth of 7¾ inches at breast-height.

The expenditure on this plantation has been Rs. 151-8-9 during the year.

Teak of 1875, *area* 60 *acres.*—This plantation is reported as fully stocked; but, as the growth of the trees on the low hills is much slower than on the comparatively level ground of the plantations of 1872 and 1873, the grass still requires to be cleared very often to prevent it overtopping the young trees. Seed was dibbled in on blanks all over the plantation during the rains.

The measurement of 80 trees is given in the following table:—

Number of trees measured.	Average height.	Average girth.	Distance at which planted.	Remarks.
55	17′	7″	4′×4′	Rocky. North facing.
25	22½′	8¾″	4′×4′	Good soil. South facing.

The expenditure on it has been Rs. 479-10-9 during the year.

113. *Sisu plantation, area* 20 *acres.*—This plantation was cleared from grass, climbers, and other jungle generally, and that part where the floods had killed many of the plants was filled up with large saplings from the nursery. The expenditure during the year on this plantation has been Rs. 335-2-6.

114. Twenty-five Mahogany and the same number of *Pithecolobium saman* were received from the Botanical Gardens, Calcutta, and planted in November, 1878, in the immediate vicinity of the plantation-bungalow. One of the Mahogany-trees died almost immediately, but the rest were doing well, until the excessive drought in April, 1879,

when 6 more of the Mahogany-trees and 6 of the *Pithecolobium* died, leaving 18 of the former and 19 of the latter alive at present.

The expenditure on the planting, carriage, &c., &c., of these trees has been Rs. 17-10-3.

The total expenditure on plantation work in the Gauháti forest division during 1878-79, was as follows:—

	Rs.	As.	P.
Caoutchouc plantation	786	4	3
Timber plantation	2,038	11	9
Temporary establishment	192	0	0
Total	3,017	0	0

115. The rainfall at the Kulsi plantation for the last four years is given for ready comparison:—

	1875-76.	1876-77.	1877-78.	1878-79.
April	3·99	2·49	4·53	4·54
May	5·26	10 06	10 59	12·19
June	24·51	19·82	10·21	13·28
July	13·81	12·61	15·30	10·12
August	16·13	12·53	6·21	17·24
September	5·09	8·93	7·82	10·70
October	2·27	4 75	3·06	3·44
November	.....	·45	.....	·58
December	·19	.....	·89	.....
January	·05	1·20	.....	.....
February	·10	·57	1·12	·14
March	·62	3·74	1·56	·11
Total	72·02	77·15	61·29	72·34

Roads and buildings.

116. The exceptionally high flood during the rains of 1878 rendered many repairs to the roads and bridges necessary, so that no new work could be attempted. The bridges near the Kulsi plantation, which had been damaged or were swept away entirely by these floods, were re-built and increased to nearly double the length of the former ones, and made also a good deal higher, so as to give more waterway.

Two new rest-houses were built during the year,—one at Barobokra, in the Pantan reserve, where all the departmental timber work is carried on at present, costing Rs. 63-4, and the other at the Nagarbera timber-depôt, on the Brahmaputra, costing Rs. 130. All other buildings, out-houses, and coolie huts were put into thorough repair. The total expenditure on buildings in the Gauháti division during the year was Rs. 372-11.

Yield and Working.

Work by Government Agency.

117. Timber operations were continued by the department both in the Pantan reserved forest for the Dhubri depôt, and in the Ranee district forest for local requirements in Gauháti. The number of Sâl-trees felled in the former was 402, and those felled in the latter only 30, since 120 trees and 86 logs remained in this forest from those felled in the previous year.

The timber which had remained in the Pantan reserved forest from previous years was 426 trees and 259 logs.

In addition to the above 432 Sâl-trees, there were 9 trees of Bola (*Morus lævigata*) felled, as the wood is much prized for furniture and oars, also four trees for dugouts and another four for bridges.

Although the number of trees felled has been 105 less than in the previous year, the number of logs and pieces, including boats or dugouts, brought to depôt has been 290 more, because so much felled timber remained in the forest.

The felling and logging is done by coolies under departmental supervision, and the dragging to the river by departmental elephants.

The floating from the forest ghat to Kukurmara is done by daily labour, and averages ten annas per log, and from Kukurmara to Nagarbera, on the Brahmaputra, it is done by task-work at an average of Re. 1-2 per log, making the total floating from the forest ghat to the Brahmaputra Re. 1-12 per log, or, if calculated by the cubic contents of the logs floated this year, one anna and four pie per cubic foot.

The felling and logging in the Ranee district forest is also done by coolies under departmental supervision, and the dragging to the beel or river by departmental elephants. The floating from the forest ghat to Gauháti is done by contract, either by the Bhorolu

Nadi, which flows direct to Gauháti, or by the Khanajan, which falls into the Brahmaputra about 5 miles below Gauháti. The floating by the Bhorolu costs on an average Re. 1-2 per log, or about one anna per cubic foot, whilst floating by the Khanajan to the Brahmaputra costs ten annas a log and from Khanamukh to Gauháti Re. 1 per log, or a total of Re. 1-10 from the forest ghat to Gauháti by the Khanajan and the Brahmaputra, or one anna and four pie per cubic foot.

The cutting of eight boats or dugouts cost Rs. 176,—seven of these were Sam and one Tita sappa. Six of these boats were cut in the reserved forests, and two in the district forests.

The total cost of timber operations in the Gauháti division has been Rs. 3,360-1-9, as shown in detail below:—

Reserved Forests.

	Rs.	As.	P.
Felling, barking, and logging	215	4	0
Floating	1,441	10	6
Dragging, including gear	331	6	9
Buildings	71	6	0
Boats	115	0	0
Timber-marking and measuring	6	8	0
Establishments	91	0	0
Conversion	14	14	0
Total	2,287	1	3

District Forests.

Felling, barking, and logging	29	9	0
Floating	208	3	0
Dragging and gear	91	9	0
Boats	62	6	0
Buildings	29	0	0
Establishments	649	1	6
Protecting logs from fire	3	4	0
Total	1,073	0	6
Grand total, as per annual summary	3,360	1	9

Adding to this the expenditure under A III., half of the expenditure under A VI., and a quarter of B, it makes the total cost of the timber brought to depôt this year Rs. 8,137, as compared with the value of 21,050 cubic feet of timber, which, at the rate of Re. 1 per cubic foot is Rs. 21,050, or a net profit of Rs. 12,913 on the year's timber works.

The timber in hand was—

	Logs.	Pieces.	Boats.
At the commencement of the year	305	248	3
Received during the year	1,062	26	8
Total	1,367	274	11
Sold during the year	21	25	...
Used by the Department	1	16	1
Transferred to the Goálpára division	185	5	...
Total	207	46	1
Balance remaining in hand at the close of the year.	1,160	228	10

The difference in the value of timber at the commencement and close of the year is in favour of the year under report by Rs. 17,959.

118. A description of the Forest Department timber-depôts in the Gauháti division is given in Appendix IV. attached to this Report, they were all surveyed, and maps of them filed in the Direction and Divisional Forest Offices.

Work by purchasers.

119. The number of trees sold standing in the forests to purchasers who remove them was 353, as compared with 238 sold in the previous year. They were all cut into dugouts and sold to Bengali traders at prices varying between Rs. 30 and Rs. 100, according to size. In many instances the boat-cutters, who are mostly villagers living in the neighbourhood of the forests, receive advances. Another common arrangement is for the trader who wants the boats to buy two trees and make them over to the boat-cutter, who makes two boats, one of which he keeps himself, and the other he gives to the trader who bought the trees. If the boats are not fairly equal in size and quality, they are both sold and the proceeds divided.

The arrangement made by timber-traders with woodcutters for the working out of timber is very complicated, so that it cannot be ascertained exactly what it costs them;

this, however, is of less interest than what the timber fetches when sold by the Assam timber-traders to the merchants from Bengal, and Mr. Mein has carefully watched over this, and found that dhums, or short logs slightly adzed, sell at Kukurmara at an average of Re. 1-4 per cubic foot.

The quantity of dead wood sold to purchasers in the forest was the following :—

	Number.	Value. Rs. As.
Dead Sâl-posts	1,389	877 11
Small pieces	282	54 9
Total	1,671	932 4

Financial Results.

120. The following figures show the receipts and charges in the Gauháti division during the year under report, as compared with the previous year:—

	1877-78. Rs.	1878-79. Rs.
Receipts	8,241	6,165
Charges A.	12,331	15,304
Charges B.	7,260	8,914
Total charges	19,591	24,218
Deficit	11,350	18,053

The difference in the value of stock at the commencement and close of the year was Rs. 18,265 in favour of the year. The value of timber transferred to the Goálpára division during the year was Rs. 5,592.

The transactions of the year in the Gauháti division are shown in the following table :—

Receipts.				Charges.	
			Rs.		Rs.
I.	Departmental timber operations.	I. and III. ...	1,606	A I., III. half of VI., and one quarter of B.	8,137
II.	Other revenue	II., IV., and V.	4,559	A II., IV., V., IX., one quarter of VI. and B.	3,567
III.	Formation, protection, and improvement of the forests.	.....	.....	A VII., VIII., and quarter of VI., and half of B.	12,514
		Total ...	6,165	Total.....	24,218

No alteration has been made in the distribution of the expenditure under the above three heads, since circumstances are the same as they were last year.

Tezpur Division.

Area and Boundaries.

121. The area of the Government reserved forests in the Tezpur division remains the same as last year. They were re-gazetted in accordance with Section 34 of the Indian Forest Act of 1878.

Proposed reserves.

122. Regarding the undermentioned area in the Darrang district, proposals were submitted to have it declared a Government reserved forest, and it was gazetted under Section 4 of the Indian Forest Act of 1878 in the *Assam Gazette* of the 8th March, 1879, page 177:—

An addition to the Khaling Duar reserved forest, area 10·9 square miles.

And in the Nowgong district the following area was proposed and gazetted in the *Assam Gazette* of the 21st June, 1879, page 364:—

The Diju Sâl forest, extending over an area of 4·3 square miles.

Demarcation.

123. The boundary-line of the Garumari reserve was cleared, and the demarcation improved by the addition of 38 boundary-posts and mounds of the prescribed size; the posts were heartwood of Sâl, and they were numbered. The southern boundary of the Khaling Duar reserved forest was also cleared, and the mounds repaired where necessary. The same was done with all the other boundaries of the reserved forests.

Along the southern boundary of the Charduar plantation reserve the road was extended by 2 miles. The boundary of Rangajan Miri village in the Nowduar reserve was also cleared, and the mounds repaired. Along the boundary of the Kholahat reserve, in the Nowgong district, some boundary-mounds were added where the intervals between the old ones were too great.

Protection and Improvement.

Permanent Establishment.

124. The permanent protective establishment remains the same in the Tezpur division. Although the proposed reserved forest on the Diju river, in the Nowgong district, has not yet been gazetted, it was considered advisable for the Forest Department to take charge of it at once, as this forest is surrounded on all sides by private estates, and trespass has to be prevented; two forest guards were accordingly placed in charge of this forest since January, 1879.

Fire-protection.

125. The fire-protection of the Sâl forests in the Darrang district has been perfectly successful this year. In the Nowgong district the Kholahat Sâl forest was set fire to near the adjoining tea-plantation, and 120 acres burned before it could be got under. The culprit who lighted the fire escaped. There were fire-lines cleared and burned around the Garumari, Kholahat, Deboka, and the different blocks of the Balipara Sâl forest, also around the Bamuni Hill Caoutchouc plantation and the Bhairabighat depôt, where the Divisional Officer's bungalow stands. In the Tezpur division all the fires have hitherto originated from mischief, which it is hoped will pass away, as people find the danger of being caught greater now than it used to be, otherwise the fire-protection in this division is less difficult than in the Goálpára and Gauháti divisions.

Cutting of creepers.

126. Creepers were cut on an area of 554 acres in the Balipara Sâl forest at a cost of Rs. 60-0-6. The method adopted was to place about 60 coolies in a line under the direction of a forester and four forest guards across the dragging-path to the south of the forest, and then to march them through the forest, each man keeping the same relative position, and cutting all the creepers on the space assigned to him. This work is particularly necessary in the Balipara Sâl Forest, as the number of trees with twisted and crooked boles in consequence of having been laden with these huge creepers, is very great.

Charduar Caoutchouc plantation.

127. The work at the Charduar Caoutchouc plantation has been pushed on with great energy by Mr. Copeland, since he took over charge of the Tezpur division, on the 6th January, 1879. The area of 112 acres, which remained unplanted in 1877-78 in Compartments Nos. 1, 2, 7, and 8, has been planted during the year under report.

The growth of the trees has been excellent and most vigorous, and the planting of *Ficus elastica* in plantations may be considered now as having advanced beyond the experimental stage, and the area to be brought under plant will in future depend on nothing else but the funds which may be available for the purpose, since Mr. Copeland has, by his tact and good judgment, entirely overcome the labour difficulty, which last year threatened to interfere seriously with the rapid extension of these plantations.

128. Since January, 1879, twelve young trees (seedlings) have been planted out every month with a view of making sure that trees, if strong and healthy, can be transplanted into the lines all the year round, and up to date there has not been a single failure, the young trees planted during the different months looking all equally well. The planting on small mounds is unquestionably a great improvement on the planting in the level ground, and is done invariably now. The number of trees planted out on the area added this year in Compartments 7 and 8 was 1,637, and in the older plantations 2,145 young trees were planted out on vacancies; besides which, 4,435 mounds or planting-spots were got ready for interplanting in the older plantation, so as to reduce the distances between the trees in the lines from 50 to 25 feet.

129. The deer proved, if anything, more destructive this year than before, and they are so powerful that the small fences of split bamboo put up around each tree proved altogether insufficient, and it was decided during the year to put up a strong fence 6 to 7 feet high all around the plantation. This has been carried out most successfully; the total length of the fence was 31,800 feet and its cost Rs. 2,264-3-3, or Rs. 7-1-11 per hundred running feet. This is a trifle higher than what the same work cost at the Kulsi plantation, but then labour is so much more difficult to procure at the Charduar plantation, and therefore slightly more expensive. The fence is most efficient, so that no more trees have been bitten since its construction; besides which, it has this advantage over the small fences around each plant, that it does not interfere with the growth of the young trees as the small fences did, by excluding air and light, especially when overgrown with climbers.

Two men go regularly every day around the whole of the fence to see that it is in good order, and report in the evening the result of their inspection. Bears and pigs force their way occasionally through, but otherwise it is never damaged.

130. A careful inspection at the end of the year of every tree in the Charduar Caoutchouc plantation proved the total number of vacancies existing to be only 47, and these were filled up.

131. All the lines on which the trees were planted out, as well as the compartment lines, were cleared as bridle-paths, thus greatly facilitating the inspection of the plantation. The jungle around the plants and in the lines is for the present cleared three times in the year, to admit air and light to the plants, *viz.*, once in May and June, the second time in August and September, and the third time in November and December.

It is hoped that this will be sufficient, it is more than has been done in previous years, since labour was always said not to be procurable locally for this purpose; but, as already stated, this difficulty has now been overcome.

132. Lines have been cut through the forest ready for planting in two new compartments (Nos. 9 and 10), which extend over an area of 230 acres. The latter will not be entered in the area statement of plantations (Form No. 46) until actually planted with trees.

Nursery work.

133. The nursery was extended by 2 acres for bedding out the young seedlings after they get 4′ 6″ high, they are generally planted in these beds at distances of 2 feet, and remain so until they are ready to be transplanted into the plantation. It is at present the rule that no trees less than 4 feet in height are transplanted.

The number of seedlings in the nursery is at present 32,094, most of which are over 3 feet in height and, besides this, there are 2,642 cuttings, most of which are 10 feet in height.

Over two maunds of seed was sown on 31 beds in February and March in the same manner as described in former reports, and the first germinated on the 18th of April, since then germination has continued. The seedlings are as yet too small to be counted, but are estimated to be about 50,000, which is much more than will be required.

134. The rainfall at the Charduar Caoutchouc plantation during the last four years is given here for ready comparison :—

	1875-76.	1876-77.	1877-78.	1878-79.
April	9·37	2·64	4·20	4·35
May	11·16	8·89	7·44	8·10
June	15·19	24·21	11·52	14·90
July	19·51	9·96	24·80	16·56
August	22·69	9·63	8·90	17·03
September	17·07	10·17	20·71	16·09
October	3·84	6·77	2·10	2·64
November	0·87	0·13	4·73	·66
December	0·47	0·60	0·08	.....
January	0·78	0·66	0·41	.....
February	0·44	.....	0·32	.....
March	0·78	2·06	3·40	.....
Total	102·17	75·72	89·61	80·33

135. The total expenditure on the Charduar Caoutchouc plantation during the year has been Rs. 9,209-14-9.

Bamuni Hill plantation.

136. The small experimental Caoutchouc plantation on the Bamuni Hill near Tezpur is kept up and protected, but no additions have been made. The growth of the plants continues very slow, yet they look healthy. The plantation is fully stocked, and was newly fenced in this year, and fire-strips cleared around it.

The total expenditure on this plantation during the year has been Rs. 332-9.

Planting of Sál.

137. A small quantity of Sâl-seed was sown under a grass cover and germinated freely; about 139 seedlings are alive, but they do not look strong. The experiment has been altogether on a very small scale, and, although successful as far as it went, it is not intended to continue the planting

of Sâl here, since there is no doubt that it can easily be grown from seed as well as transplants, it being a mere question of cost. All funds available for plantation work in the Tezpur division are required for Rubber planting. The expenditure on this experiment during the year has been Rs. 89-6-3.

Roads and Buildings.

138. The road along the southern boundary of the Charduar plantation was extended by two miles, and all the older part repaired. Seven bridges on this road were also commenced, but only one was completed before the end of the year. Want of funds only prevented more of this work being done, since Mr. Copeland found no difficulty in procuring labour, except sawyers, who were not to be had, and the bridge work on this account remained somewhat behind. This road is most urgently required, as it is the only means of making the Charduar forest accessible without much waste of time, and it is intended to push on this work as much as funds available will permit. The expenditure on the new work during the year has been Rs. 1,004-15-9, whilst the repairs of that portion made before has cost Rs. 142-12-6. The amount spent on bridge work was Rs. 384-15-1.

All other roads and bridle-paths were also repaired and cleared so as to be passable for ponies, and all foot-paths have been cleared to be easily patrolled by the forest guards. The total expenditure on road work, including bridges, in the Tezpur division during the year under report has been Rs. 1,793-7-7.

139. A lightning-conductor was put up at the Bhairabighat forest house, where the Divisional Officer lives, and the out-houses were thoroughly repaired. The inspection hut at the Charduar plantation was also put into thorough repair, as well as out-houses. The forest-ranger's house was also repaired, and two new huts built for the mahouts and three for forest guards; one of the latter at the Tezpur timber-depôt. The total expenditure on buildings in the Tezpur division during the year has been Rs. 1,242-10-9.

Yield and Working.

Work by Government agency.

140. Timber works, as already stated last year, are confined in the Tezpur forest division to local requirements, because local labour is so expensive that these operations cannot be made sufficiently remunerative if timber worked out of these forests by the department has to be taken as far as the Goálpára timber markets before it can be sold.

No Sâl-trees were felled during the year, and the total number of other trees felled was only 46, they came all from the Balipára reserve.

The quantity of planks for bridges in stock is also sufficient to meet the local requirements, so that no further conversion of timber has been attempted.

The timber in hand was—

	Logs.	Pieces.
At the commencement of the year	22	1,551
Received during the year.....	342	401
Total.....	364	1,952
Sold during the year	65	691
Used by the department	...	158
Lost	10	...
Total.....	75	849
Balance remaining in hand at the close of the year...	289	1,103

The difference in the value of timber at the commencement and close of the year was Rs. 4,258 in favour of the year.

Work by purchasers.

141. The number of trees sold standing in the forest to purchasers was 61, as compared with 34 sold in the previous year.

Financial Results.

142. The receipts in the Tezpur division were more than in the previous year, but this has partly to be attributed to the comparatively large amount of revenue outstanding from the previous year. Since no departmental timber operations on a large scale are carried on, for the reasons given above, and as the forests in this division are not as yet much resorted to by purchasers who work out timber on their own account, the receipts are not large, as shown below, whilst the extensive cultivation of the Caoutchouc-tree naturally is a heavy expenditure without immediate returns, and makes the deficit in this division larger than in any other.

The receipts and charges, as compared with the previous year, were the following:—

		1877-78. Rs.	1878-79. Rs.
Receipts		4,315	5,673
Charges	A	11,591	20,897
	B	6,980	7,410
Total charges		18,571	28,307
Deficit		14,256	22,634

The difference in the value of stock at the commencement and close of the year was Rs. 1,749 against the year.

The transactions of the year are shown in the following table:—

Receipts.			Charges.	
		Rs.		Rs.
I. Departmental timber operations	I., and III.	5,378	A I., III., half of VI., and one quarter of B..	5,882
II. Other revenue	II., IV., and V.	295	A II., IV., V., IX., one eighth of VI., and B.	1,767
III. Formation, protection, and improvement of the forests.	....	....	A VII., VIII., three-eighths of VI., and five-eighths of B.	20,658
	Total	5,673	Total	28,307

The distribution of the expenditure in the above table has been made in the same way as was done last year, since no changes have taken place warranting a modification.

Golághát Division.

Area and Boundaries.

143. The area of the reserve forests in this division remains the same as in the previous year, they were re-gazetted in accordance with Section 34 of the Indian Forest Act of 1878.

Proposed reserves.

144. Proposals were submitted and gazetted under Section 4 of the Indian Forest Act of 1878 in the *Assam Gazette* of the 15th March, 1879, page 186, regarding the following areas:—

(1) An addition to the Mikir Hills mixed evergreen forests extending over an area of 16 square miles.

(2) The Lower Daigurung mixed evergreen forest, extending over an area of 8 square miles.

(3) The Upper Daigurung mixed evergreen forest, extending over an area of 8·3 square miles.

Demarcation.

145. New and more substantial posts and mounds of the prescribed size were erected at all the points where the Golághat and Samaguting road crosses the different boundaries of the Nambor reserved forest, and all other boundary-lines were cleared, and the posts and mounds repaired where necessary.

The demarcation of the land allotted to the village of Barhola for cultivation has also been carried out, and seven boundary-posts and mounds were put up.

At the newly-proposed Lower and Upper Daigurung forests, the boundary-lines were cleared to a width of 12 feet, and 20 new boundary-posts and mounds of the prescribed size erected to improve the demarcation of these forests.

Protection and Improvement.

Permanent establishment.

146. The permanent protective establishment in the Golághát division remains the same as in the previous year, but had, as in other divisions, to be strengthened by an additional temporary establishment for timber work.

Jhúming.

147. Trespass in the Government reserved forests of the Golághát division is rare, and the only danger almost these forests are exposed to is jhúming by the neighbouring villagers, since on the eastern side the people from the Sibságar district have only to cross the Dayang river to get into the reserve, on to very fine land, whilst at the western boundaries of the Nambor reserves they have only to descend from the Rengma Hills to get on to the same rich land and level ground; so that the temptation is very great, and the protective establishment has accordingly to be very active to prevent jhúming in the reserve. With the Mikir Hills reserve it is very much the same, as the people are nearly at the end of all forest land outside the reserve, and they much prefer the latter to land which has been jhúmed before, especially when it can be had as conveniently situated as the Mikir Hills are.

148. The experiment of improving the Nambor forest by sowing of Nahor and Ajhar has been most successful, all the young seedlings looking healthy and vigorous. It has shown, however, that, whilst Nahor evidently does better with much shade overhead, Ajhar, on the contrary, likes more light, since the young seedlings have thriven better and are altogether much stronger wherever there was most light, and, since the numbers of good timber-trees in the locality where the experiment is being carried on is comparatively small, the amount of light admitted from above can be so regulated as it suits each species best. The results have been so favourable that it becomes in future only a question if funds are available or not, to extend this work. This it is most desirable to do, because in the Nambor reserve, as in all other mixed evergreen forests, the proportion of the more valuable trees on a certain area is naturally small, if compared with Sâl forests, which grow gregariously, and leave the Sâl tree naturally predominant over all the other trees.

Nahor and Ajhar sowing.

149. There was again a great scarcity of Nahor-seed, both in the Nambor and Mikir Hills reserved forests, and it has not as yet been explained satisfactorily if this was exceptional or if it is general that this tree bears very much less seed in the forest than when standing in the open, for in the latter places it bore seed very freely. Due attention will be paid to this in future to ascertain the real facts, and to take advantage of good seed years, if they vary greatly and only happen at intervals of several years. Ajhar-seed is much more easily obtained in large quantities.

150. The natives of the country also distinguish between two varieties of Nahor, one with a very large proportion of heartwood, and the other with a, comparatively speaking, small amount of heartwood. More precise information about this interesting fact will also be obtained as soon as possible.

151. The collection of Sam-seed has been attempted, but as this seed cannot be gathered from the trees, and has to be left until the fruit drops, it is difficult to procure, as the pigs and other animals devour the seed. The seedlings of Sam collected in the forest have also proved less hardy than the other two kinds of trees. Still worse than the Sam-seed is that of Gunserai (*Cinnamomum glandulíferum*), and, whilst seedlings of Sam are comparatively plentiful in the forests, those of Gunserai are scarce.

Sam and Gunserai sowing.

The sowing and planting of both these kinds, in addition to Nahor and Ajhar, deserve the closest attention.

152. The roads and paths in the forests were cleared, so as to be readily accessible for the forest guards to patrol, and also fit for ponies to be used on them. The roads maintained by the Forest Department are those connecting the control-stations on the three large rivers, Dayang, Dhansiri, and Daigurung, whilst the district road running from Golághát to Samaguting is kept in order by the District Engineer, and is of great use to Forest Officers.

Roads.

153. The building of the Golághát forest house for the Divisional Officer has required much time and attention, but is now almost completed, it is substantial and large enough to provide the necessary comfort, this has been a great want much felt in the Golághát division in former times.

Buildings.

All the inspection-huts at the control-stations were also repaired, and the surrounding ground kept clear of jungle, to make the places healthy. There was some fear of the Jamaguri inspection-hut being washed away by the Dayang, but this river has again slightly changed its course, and the building seems to be safe for the present.

YIELD AND WORKING.

154. The difficulty of floating timber from Golághát to Dhubri, alluded to in last Annual Report, caused the boatmen sent from Dhubri to Golághát to be so dilatory in their journey up-stream that by the time they reached Dhansirimukh there was not water enough for timber-laden boats to get over the shallows, and they had consequently to return without any timber. The department incurred no actual loss, but the timber remained in the Golághát depôt where there is no sale for it. The rate which has to be paid for floating from Golághát to Dhubri is Rs. 5 for a log 12 feet in length, which is so high that but a very small margin is left for profit on account of the value of the tree itself, and it is not intended at present to continue the working out of timber from the Nambor forests for the Goálpára timber markets. At the same time these experimental timber works have been most useful for ascertaining their cost by actual work, which was not known before, it will be a guide in considering this question for the future.

Work by Government agency.

155. The sawing of Ajhar planks for bridges on the local roads and of Nahor sleepers for experiment by the Northern Bengal State Railway came to a sudden standstill in consequence of an outbreak of cholera of a very virulent type amongst the sawyers in the forest, and nothing could induce these men to remain even for a day. The disease was brought by sawyers coming from a tea-plantation in the Sibságar district, who, on their way to Samaguting stopped for the night with the sawyers employed by the Forest Department, and died before morning. Since these men, and especially their sirdar, were good and reliable persons, who had become accustomed to these forests, the panic caused is much to be regretted. The sirdar was one of the first who died. The number of trees felled by the department during the year in the Golághát division was 334, they came all from the forests on the right bank of the Dhansiri river, north of the village of Burhola. The number of boats or dugouts cut during the year under notice was 10, and if men who cut these boats were more plentiful in the neighbourhood, many of the trees might be worked out in this shape, as there is a great demand for them, and consequently a very good price paid, such as would in other parts of the country, lower down the Brahmaputra, induce boat-cutters to extend their work rapidly; but there is a great want of enterprise among the people living near the Nambor and Mikir Hills reserves, and the extraction of timber in any shape from these forests is not likely to increase much until the Bengal timber-cutters find their way to them.

156. The timber in hand was—

	Logs.	Pieces.	Boats.
At the commencement of the year	3	16	1
Received during the year	528	274	10
Total	531	290	11
Sold during the year	...	81	8
Used by the Department	5	99	...
Total	5	180	8
Balance remaining in hand at the close of the year	526	110	3

The difference in the value of timber at the commencement and close of the year was Rs. 6,655 in favour of the year.

Work by purchasers.

157. The number of trees sold standing in the forest to purchasers was three, as compared with five sold in the previous year.

158. A tea-planter from Golághát received permission to make charcoal in the Nambor reserved forest at 2 annas per maund; the locality was pointed out by the Divisional Officer, and the more valuable timber-trees, which were not allowed to be felled, marked previously. The quantity manufactured and removed during the financial year was 1,062 maunds.

The revenue realized at the Dayang control-station was Rs. 156 on 27 boats brought down that river.

159. The revenue collected on minor forest produce and drift-wood was the following:—

	Rs.	As.
Charcoal	132	12
Reeds for mats	2	10
Grazing dues	6	12
Cane	8	2
Drift-wood	42	0
Total	192	4

Financial Results.

160. The receipts in the Golághát division have been less than in the previous year on account of the limited sales of timber from the depôt, which vary much. The expenditure has been more on account of the building of the bungalow at Golághát, which is almost completed. There will be a deficit in this division for some years to come, since the demand for timber and other forest produce from these forests is as yet very limited, and the management and protection is accordingly carried on as economically as possible; yet it would be very unwise to weaken the present protection given

to these forests on this account, since there is no doubt whatsoever that great demands will be made on these forests, as soon as those at present in possession of private individuals are exhausted or have been cleared for cultivation.

The receipts and charges in the Golághát division during the year under notice were the following, as compared with the previous year :—

		1877-78. Rs.	1878-79. Rs.
Receipts		2,133	1,332
Charges	A.	5,301	6,016
	B.	4,462	6,467
Total charges		9,763	12,483
Deficit		7,630	11,151

The difference in the value of stock at the commencement and close of the year was Rs. 3,946 in favour of the year.

The transactions of the year in the Golághát division are exhibited in the following table:—

Receipts.			Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III.	817	AI., III., half of VI., and one quarter of B.	4,106
II.—Other revenue	II., IV., and V.	515	AII., IV., V., IX., one eighth of VI., and B	1,309
III.—Formation, protection, and improvement of the forests.			AVII., VIII., three-eighths of VI., and five-eighths of B.	7,068
	Total	1,332	Total	12,483

Although the disbursements under A I. have been larger than in the previous year, timber operations did not take up as much time of the establishments, nor were the elephants used more for timber work than for other purposes, and the distribution of expenditure in the above table has been modified accordingly.

Sibságar Division.

Area and Boundaries.

161. No forests have as yet been declared reserved in the Sibságar district, but a detailed and thorough examination was carried out in the sudder sub-division and extended over an area of 772 square miles during the year. Mr. D'Arcy has submitted a very full report on this work, as well as a map on the scale of 4 inches to the mile, showing the position and extent of the different classes of forest, as well as of grass land, tea-plantations, and other cultivation, which is a most necessary and useful groundwork for future systematic forest management in this district, and has supplied a want long felt, since it was quite impossible to form a correct idea of the distribution of the different descriptions of land in the Sibságar district without this.

162. The area which it is proposed to constitute Government reserved forests is 49 square miles out of the total area of 772 square miles examined during the year.

Protection and improvement.

163. As stated above, no reserved forests have as yet been gazetted, and there were consequently no forests to be strictly protected. At the same time, the Deputy-Commissioner of Sibságar was glad to have a Forest Officer in the district to undertake the general supervision of forest matters, and the district protective establishment, consisting of one forester and two forest guards, was placed under the Divisional Forest Officer when he arrived in the district, and the inspection of forest lands wanted for cultivation or other purposes by private individuals or companies was also entrusted to him, so that it may be said the forests in the Sibságar district have undoubtedly had a greater amount of protection than before, and, as regards improvements, it may also be said with equal justice, that a beginning has been made, since selecting and demarcating forests is the first step towards the improvement of forests in a district.

Yield and Working.

164. Since no reserved forests have been declared as yet, there was, of course, no yield or working of the forests, and whatever revenue was realized will be accounted for in the chapter on unreserved forests.

Financial Results.

165. For the same reason, there has been no revenue collected by the Divisional Forest Officer, and it cannot be said that there has been any change as yet in the collecting of forest revenue in the Sibságar district; still, hopes are entertained that matters will improve greatly in future, now that the examination of lands allotted for cultivation rests with the Forest Officer, instead of with the forester, who not only was too ignorant to do this work thoroughly, but these men on small pay are also suspected to be frequently influenced in making their reports by motives not altogether disinterested, which will not be the case in future.

Cachar Division.

Area and Boundaries.

166. There has been no change in the area of the Government reserved forests in the Cachar division, and they were, as in all other divisions, re-gazetted in accordance with Section 34 of the Indian Forest Act of 1878.

Demarcation.

167. As in the previous year, the chief work in the Cachar forests has been the demarcation of the private lands adjoining and included in the reserves, which are very numerous, and the artificial boundaries so extensive that it will require another season before it can be completed. This demarcation is most urgent, to prevent encroachment by the extension of cultivation into the reserved forest from the private estates, the owners or managers of which are often ignorant of the boundaries, except on maps, and in most cases have so much more land than they require at present for cultivation, that they take but little interest in the maintenance of the boundaries of these estates. This, as a matter of course, will change very much as time goes on, and the limits of estates are approached by cultivation, and there is no doubt that the time will come when great complications must arise from the deficient demarcation of such estates. It is with a view to prevent this, as far as the Government forests are concerned, that this demarcation work is being pushed on as energetically as possible, and nothing else in the way of improvement is attempted, as the latter course would, with the very limited forest establishments available, only divert their attention from the demarcation work.

The length of boundary cleared and the number of boundary-mounds repaired and added were as follows:—

	miles	yards.
Length of old boundary-line re-cleared during the year to a width of 20 feet	16	1,716
Length of newly-cut boundary line	22	92
Number of boundary-posts and mounds repaired	58	
Number of new boundary-posts and mounds erected	211	

The following is a statement of the work done during the year, and what remains to be done in each of the Government reserved forests in Cachar in the way of demarcation :—

I.—Upper Jiri Reserve.

(1) Boundaries cut and demarcated—
  (*a*) The northern boundary of this reserve form the Digli to the Jiri river was re-cleared, and boundary-posts and mounds repaired where necessary.
  (*b*) The same was done with the boundary of the Digli grant.
  (*c*) Also with the boundary of the Bahadurpur grant.

(2) Boundaries remaining to be cut and demarcated—
  (*a*) The lands appertaining to Chorpuñji, Shabopunji, and Singkhappunji.

II.—Lower Jiri Reserve.

(1) Boundaries cut and demarcated—
  (*a*) The boundary of the Alni grant was re-cleared, and boundary-posts and mounds repaired where necessary.

(2) Boundaries remaining to be cut and demarcated—
  (*a*) The lands appertaining to the three Nága villages.

III.—Barak Reserve.

(1) Boundaries cut and demarcated—
  (*a*) The boundaries of the Naraindhur grant were re-cleared, and the boundary-posts and mounds repaired where necessary.
  (*b*) The same was done with the boundaries of the Bhuban khal grant.
  (*c*) The boundaries of the Mankush grant.
  (*d*) The remaining portion of the Doobheedhar grant.
  (*e*) The boundaries of the Mainadhar grant.

(2) Boundaries remaining to be cut and demarcated—
  (*a*) Portion of the Doobheedhar grant.
  (*b*) The lands appertaining to the Kuki villages under Mantingkhup.

IV.—Sonai Reserve.

(1) Boundaries cut and demarcated—
  (*a*) The boundaries of the Dhurmeekhal grant were re-cleared, and the boundary-posts and mounds repaired where necessary.
  (*b*) The same was done with the boundaries of the Monierkhal grant.
  (*c*) The boundaries of the Rukmini grant.

V.—Katakhal Reserve.

(1) Boundaries cut and demarcated—
  (*a*) The boundaries of the Rupacherra grant were re-cleared, and the boundary-posts and mounds repaired, where necessary.
  (*b*) The same was done with the boundaries of the Hasiura grant.
  (*c*) The boundaries of the Nunai grant (No. 135 of 1872-73).
  (*d*) The boundaries of Sonarbund and Loharbund grants.
  (*e*) The boundaries of settled land No. 302 of 1874-75.
  (*f*) The boundaries of the Boorunchurra grant.

(2) Boundaries remaining to be cut and demarcated—
  (*a*) The Jufferbund grant.

VI.—Dhaleswari Reserve.

(1) Boundaries cut and demarcated—
  (*a*) The boundaries of the Cutlicherra grant were re-cleared, and the boundary-posts and mounds repaired where necessary.

(2) Boundaries remaining to be cut and demarcated—
  (*a*) A small portion of the Alexandrapur grant.
  (*b*) The Oloicherra grant.

VII.—Inner Line Reserve.

The South Cachar Inner Line was not re-cleared during the year under notice. The maintenance of this line is in charge of the District Officer.

Protection and Improvement.

Permanent establishment.

168. The permanent protective establishment in the Cachar division has been more efficient than in former years, on account of the increase sanctioned by the Government of India. It is posted as follows:—

One forest-ranger in charge of the western sub-division, comprising the Dhaleswari and Katakhal, as well as the western half of the Inner Line reserves:—

Posts of forest guards.

Hasiura	3 guards.
Loharbund	2 „

One forest-ranger in charge of the eastern sub-division, comprising the Sonai, Barák, Lower and Upper Jiri, as well as the eastern half of the Inner Line reserves.

Posts of forest guards.

Silchar	1 guard.
Nagdigram	3 guards.
Mankush	3 „
Jirighat	2 „

Jhúming.

169. The danger of trespass, except encroachments by jhúming, is not great in the Cachar forests, but it requires all the energies of the forest establishment to watch over the different tribes who carry on jhúming, to prevent them clearing, for this mode of cultivation, within the Government reserved forests, and every effort is made to remind these people constantly not to enter the reserves, so that they may have no cause for complaint, if they have to be stopped and suffer inconvenience in consequence of having disregarded the rules about Government reserved forests.

Buildings and boats.

170. The office at Sealtek was repaired and two new guard-houses constructed,—one at Mankush and the other one at Hasiura. For the use of the forest-rangers and forest guards, three boats were bought at Rs. 60, Rs. 20, and Rs. 15, respectively, since most of the Cachar forests are accessible mainly from the rivers on the banks of which they are situated.

Yield and working.

171. No change has been made in the system of working the Cachar forests, neither would it be advisable to do so under present circumstances, because any other system would require a very much larger establishment without increasing the efficiency of conservancy much, and, desirable as any improvement in conservancy no doubt is, it will have to be regulated by the revenue derived from the Cachar forests. Another reason for not introducing a different system of working the Cachar forests just now is that wood-cutters and timber-dealers are well accustomed to the present one, and very suspicious about any changes which may be introduced, as was evidenced when the farming of the forest revenue station at Sealtek was stopped, and its management carried out by direct departmental agency.

The slackening of the timber-trade caused by the latter measure has quite disappeared now, and the receipts at the Sealtek forest revenue station exceeded the income from forest produce under the old system of farming this ghat. A special report on the working of the Sealtek revenue station has been submitted, in obedience to the orders of the Chief Commissioner contained in the Resolution on the last Annual Forest Report. No change was made during the year in the rates paid for licenses to cut or drag timber. The rates of revenue collected at Sealtek remained also the same.

172. The following licenses for cutting timber, bamboos, canes, &c., &c., and for elephants dragging timber, were granted in each month during the year:—

Licenses granted.

	Licenses for cutting timber, bamboos, &c.	Elephant licenses.
April, 1878	112	8
May, „	185	16
June, „	46	5
July, „	477	30
August, „	268	27
September, „	652	22
October, „	301	19
November, „	71	7
December, „	8	4
January, 1879	227	11
February, „	257	18
March, „	170	18
Total	2,774	185

These licenses were distributed in the following proportion amongst the different forest reserves and the unreserved forests:—

	Licenses for cutting timber, bamboos, &c.	Elephant licenses.
I.—Upper Jiri Reserve	222	17
II.—Lower Jiri „	33	2
III.—Barák „	67	4
IV.—Sonai „	36	...
V.—Katakhal „	71	...
VI.—Dhaleswari „	11	4
VII.—Inner Line „	902	88
Unreserved forests	1,432	70
Total	2,774	185

173. The quantities of forest produce, including that from foreign and private forests, which passed the Sealtek revenue station each month, were the following:—

Sealtek revenue station.

Month.	Logs.	Posts and planks.	Tea-boxes.	Bamboos.	Canes in bundles.	Reeds in rafts.	Grass in rafts.	Charcoal and firewood in maunds.	Amount realised. Rs. As. P.
April, 1878	376	40	....	19,170	5,103	2	11	.....	879 13 0
May, „	120	148	....	17,000	452	3	7	.....	499 1 3
June, „	317	40	....	34,400	937	1	....	.....	684 6 0
July, „	875	50	291	8,700	1,913	11	....	.....	1,690 9 9
August, „	863	36	185	29,800	3,815	2	2	11	1,996 0 3
September, „	556	78	150	24,250	2,163	1	8	.....	1,319 14 0
October, „	1,009	67	130	1,10,200	2,602	42	4	100	3,276 12 9
November, „	261	4	....	1,33,125	4,040	13	23	.....	922 9 6
December, „	680	....	16	27,600	1,352	....	8	.....	2,062 5 0
January, 1879	392	9	....	600	1,226	2	47	.....	1,575 3 0
February, „	47	....	....	3,000	1,584	12	45	5	810 3 3
March, „	398	....	....	12,850	1,564	4	59	.....	1,154 0 0
Total	5,883	522	792	4,20,695	26,752	93	214	116	16,251 13 9

Financial Results.

174. The forest revenue in the Cachar division is steadily rising, and would be much more if the district of Cachar was not exempted from paying. After consultation with the District Officer, proposals were submitted for the Chief Commissioner's consideration and orders, to establish another revenue station at Sonaimukh, with a view of collecting revenue on forest produce consumed in Cachar.

The receipts and charges, as compared with the previous year, were the following:—

	1877-78.	1878-79.
	Rs.	Rs.
Receipts	13,231	19,840
Charges ... A	2,753	3,077
Charges ... B	6,163	5,060
Total charges	8,916	8,137
Surplus	4,315	11,703

The increase in the revenue collected at Sealtek over that collected in the previous year was Rs. 5,855, the increase in the license-fees was Rs. 564. The receipts from confiscated drift and waif-wood was Rs. 192-4-2, which is Rs. 221-15-10 less than was collected in the previous year. The miscellaneous receipts are insignificant; they were Rs. 4-13-2.

There was a slight increase in expenditure of Rs. 324-14-6, under "A. Conservancy and works" which is entirely due to the greater amount of demarcation work done during the year. The expenditure under "B, Establishments" was less by Rs. 1,103-7-3 since no Forest Officer was appointed for the Cachar forests.

The difference in the value of stock at the commencement and close of the year was Rs. 447 in favour of the year.

The following table shows the transactions of the year in the Cachar forest division:—

Receipts.			Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I. and III	192	A I., and III	7
II.—Other revenue	II., IV., and V	19,648	A II., IV., V., IX., one half of VI., and B	2,896
III.—Formation, protection, and improvement of forests	....	....	A VII., VIII., half of VI. and B	5,235
	Total	19,840	Total	8,137

The distribution of expenditure in the above table is the same as was adopted last year, since no changes in forest management warranting a modification have taken place.

CHAPTER III.

PROTECTED AND DISTRICT FORESTS.

175. The gazetted "open" or "district forests" in Assam were, in accordance with Section 34 of the Indian Forest Act of 1878, declared by notification in the *Assam Gazette* of the 19th October, 1878, page 494, to be Government protected forests under that Act.

The schedule giving district, pergunnah, or other sub-division, names of protected forests, and description of boundaries, is attached to this Report as Appendix II.

176. There are, and will be for many years to come, large areas of forests in the Province of Assam, which it is unnecessary to maintain as forests, and can be given up for cultivation; but, until surrendered for this purpose, they will supply the chief local wants of forest produce, and for this reason have to receive much attention as far as revenue control goes. These forests will, in distinction from gazetted protected forests, be designated district forests.

Revenue regulations regarding forest produce apply equally to both gazetted and non-gazetted forests in Assam.

177. The present protected forests will, as soon as the necessary establishments for their management are sanctioned, become, with minor exceptions, Government reserved forests, whilst, as regards the district forests, many of these will have to be gazetted as protected, and may be village forests, to prevent inconvenience to the inhabitants in procuring the ordinary requirements of forest produce for domestic purposes.

178. The selection of superior in distinction from inferior forests in the different districts of Assam has proved too heavy a task for the forest subordinates employed under District Officers and the mouzahdars, still the orders issued regarding this distinction and the payment for timber standing on land allotted for cultivation, have had the most beneficial effect on forest conservancy, inasmuch as District Officers have not surrendered the better forests for cultivation, and tea-planters and others have naturally chosen, for economy's sake, the best land procurable without much valuable timber on it, so that, without the superior forests having actually been decided on and defined, the object of the order has been attained to a great extent, and better forests been saved from alienation until now, when this important work of deciding which lands are to be maintained as forests will be carried out in the different districts by Forest Officers of the superior staff.

179. During the year under notice a Mineral Oil Company, for working the petroleum springs on the left bank of the Dehing river above Jaipur; a Coal Mining Company, for working the coal found in the same locality; and a Railway Company for the road between Dibrugarh and Sadiya and Dum Duma and Makum, have been started, all of which will have a very important bearing on forest management in Upper Assam. But as the leases to be given to each of these companies have not been finally sanctioned, their probable influence on forest management, and the concessions granted in the way of forest produce, will be noticed in the next Annual Forest Report.

Protected Forests.

Sylhet district.

180. The restrictions in, and the rates of toll on, produce removed from, as well as of permit-fees for the Langai and Singla forests in the Sylhet district, as sanctioned by the Chief Commissioner, and quoted in para. 164 of the last Annual Forest Report, remain the same as before.

181. But little has been done as yet for the proper protection of these forests, since three years in succession the Khedda Department has had this large area of 200 square miles reserved for elephant-hunting, which has never been carried out. The Deputy-Commissioner has consequently not been able to make proper arrangements for the protection of these forests, or for the removal of forest produce from them. The organization of these important forests has been delayed, and they have thereby been exposed to much danger of encroachment by jhúming, to say nothing of the loss of revenue for three years, which, if added to the cost of catching the elephants, no matter how successful that work may be, must make those animals very expensive. The inconvenience caused by this uncertainty of the intended khedda operations has been brought to the notice of the Chief Commissioner.

182. The Maharájah of Hill Tipperah was informed of the intentions of Government to protect the Langai and Singla forests, and asked to take such measures as will prevent his subjects from encroaching on, or causing any damage in, these forests.

183. The northern boundary from the Cachar district in the east to the Langa river in the west was surveyed, and demarcated where no natural boundaries existed. The boundary between the Langai river in the east and Adam Tila in the west, as well as the western boundary south of Adam Tila, remain to be surveyed and demarcated.

The Deputy-Commissioner does not anticipate depredation from the east or south, whilst the danger in the west, from the Pherua Dharmanagar valley, is stated to be considerable.

Sibságar district.

184. The protection of the Panidehingia forest, in the Sibságar district, has rested with the mouzahdar during the year, since the forest establishment under the Deputy-Commissioner, as well as that sanctioned for the Sibságar forest division, were employed under Mr. D'Arcy in the examination of forests for the purpose of declaring the best of them Government reserves.

Lakhimpur district.

185. The same has been the case with the protected forests in the Lakhimpur district, since no Forest Officer was available for that district, and the one forester and two forest guards under the Deputy-Commissioner were fully occupied in the examination of land applied for for cultivation, and the control of fellings done by purchasers who removed timber from the forests. It is hoped, now that another Forest Officer has been promised next working season, the demarcation of these forests, with a view of declaring them reserves, will be commenced during the current year.

District Forests.

Gáro Hills district.

186. The examination of the forests in the Gáro Hills was commenced by the Deputy-Commissioner of the district and Mr. Fisher during the year, but had to be confined to mouzah No. 4, since the Deputy-Commissioner considered that the boundary between the Mechpara zemindari and Government land should be surveyed first before the selection of reserved forests in mouzah No. 3 be attempted, and, consequently, none of the forests have as yet been proposed definitely as reserved forests, although 22 square miles were selected for the purpose.

Kámrúp district.

187. The examination of the forests in South Kámrúp, along the boundary of this district and the Khási Hills, and in the south-western part of the Kámrúp district, was continued, and all west of the Jara reserve completed. The area which remains east of the Jara reserve is so limited, that it is hoped to finish this work during the current year. Meanwhile, the energies of the forester and two guards employed under the Deputy-Commissioner have been chiefly concentrated on these forests to prevent spoliation. The protection of the district forests in Kámrúp is very well assured, considering the small establishment available.

Other valley districts.

188. In the remainder of the Brahmaputra Valley, the district forests, although not equal in value to the Sâl forests in the Gáro Hills and Kámrúp, yet they cover a large area, containing vast quantities of useful timber and other forest produce, supplying mainly the present local requirements of the Province, and, by the revenue paid for their produce, are the chief means of ensuring an equilibrium between receipts and expenditure, which is not to be attained just now from the management of reserved forests only, on account of these having been overworked in Lower Assam, and their being situated less conveniently in Upper Assam than the district forests. In short, these forests are supplying the means of protecting and improving the forests on which Assam has to depend for the future, and without which the present prosperity of the Province could not be maintained, since the requirements of wood in the tea industry are very much greater than is understood in the present day, when there is a superabundance of it, and it would be very unwise to defer measures ensuring the continuance of these supplies until their want was being much felt, for, whenever forest conservancy measures are considered, it must be remembered what time it takes to produce forests, which fact, simple as it is, is seldom appreciated sufficiently.

Khási and Jaintiá Hills district

189. In the Khási and Jaintiá Hills, the demarcation of the forests enumerated in Appendix VII. of the Annual Forest Report for 1876-77 was continued during the year: their protection rests, as hitherto, with the Seims, Dollois, and other headmen of village communities, in whose interests these forests were reserved from cultivation, and their protection insisted upon.

190. The following rules were proposed by the Deputy-Commissioner, who also recommended that, as no expenditure is incurred in the conservancy of these forests, their produce should be allowed, subject to these rules, free of payment to the people :—

(1.) That no trees measuring less than 4 feet in girth, at a height of 4 feet from the ground, be allowed to be felled.

(2.) That trees measuring 4 feet or more in girth at a height of 4 feet from the ground may be felled by persons requiring the same for their own use, but not for sale, on permission obtained from the Dolloi within whose circle the forest is situate.

(3.) That no timber, old or young, be felled for the purpose of firewood, but that thatching-grass, cane, bamboos, dry wood, or faggots, and dead timber may be taken in the ordinary exercise of their forest rights by the people.

The Chief Commissioner approved these rules, and the Deputy-Commissioner was instructed to publish them, but at the same time to make the people understand that they are no admission of any right, but a concession of privileges only, on the part of Government, and liable to subsequent modification or withdrawal.

Systems of working protected and District Forests.

Rules regulating timber-felling.

191. The working of the rules laid down in Circular No. 43, dated the 10th August, 1877, attached to last Annual Forest Report as Appendix III., has been generally successful. These rules are, in their bearing, both a measure to ensure conservancy as well as the proper collection of forest revenue.

As regards the conservancy of forests by District Officers and their subordinates, without the aid of a Forest Officer, this could only be of a preliminary character; but, even as such, the rules have been most beneficial, inasmuch as they impressed on District Officers the value of this property of the State, instead of allowing it to be looked upon as a nuisance to be got rid of, as had frequently been done before.

The rules in the above circular also impressed on District Officers the right of Government to receive the value of its property, whenever it was required by others, either for direct convenience, or the medium through which to obtain wealth, and the result has been most satisfactory, inasmuch as it raised the forest revenue from Rs. 42,000 in 1876-77 to Rs. 1,22,000 in 1878-79.

In the Goálpára district there are next to no forests managed by the Deputy-Commissioner, since the greater part is permanently-settled land, and the valuable forests in the Eastern Duars have all been declared reserves. The Deputy-Commissioner reports that no applications of the nature indicated in Circular No. 43 have been preferred to him either by merchants or ryots.

In the Kámrúp district, the Deputy-Commissioner reports that the rules have worked well, although at the outset the increase in the tax on Sâl-trees had deterred timber traders from making applications for them. This state of things, however, did not continue long, for the traders found that, even at the enhanced rates, they made large profits, and they have since come forward in large numbers and made applications for permission to fell timber.

In the Nowgong district, there are but small areas of forest left, and no trade in timber exists, so that trees are only felled for local requirements, and, as far as these go, the rules have worked well. By far the greatest part of the revenue is realized by the sale of timber standing on land allotted for cultivation.

In the Darrang district, the Deputy-Commissioner reports that the rules regulating timber-felling have worked well, and that he has experienced no difficulties whatever in introducing them; they are well known by the public, and understood by the mouzahdars, who have the direct charge of the forests. No complaints of any kind against these rules were received either by the Deputy-Commissioner or the sub-divisional officer; they prevent waste, and result in a considerable income to Government. Comparatively little timber exists on private estates in the Darrang district, so that, although no timber is exported, the demand for trees from the Government forests in charge of District Officers is considerable.

In the Sibságar district, the Deputy-Commissioner reports that the rules about timber-felling are observed as far as possible, but that it is difficult in out-of-the-way places always to detect all cases not done in accordance with these rules, and that the mouzahdars have not the establishments requisite for the purpose.

In the Lakhimpur district the mouzahdars are looking after the forests in their respective mouzahs, but, as the latter are often very large, and communication in the rains is very difficult, the efficiency of forest management is not very great.

The number of applications for timber is increasing, and shows that the people are gradually acquiring a knowledge of the rules regarding timber-felling. Timber cut beyond the Inner Line is, with the Chief Commissioner's sanction, to be paid for at the rate of Re. 1 only per log, or, according to the discretion of the Deputy-Commissioner, so as not to become a restriction on the importation of timber.

In the Nága Hills, the demand for trees is so extremely limited that the rules have not had sufficient scope, the Political Officer thinks, to permit of an opinion being formed on their working in that district.

192. Two temporary forest guards on Rs. 5 each per mensem were sanctioned by the Chief Commissioner to watch, on the Kulsi and Batta rivers in the Kámrúp district, that no timber was floated down without a pass from the respective mouzahdars.

193. It was brought to the notice of the Chief Commissioner that Rule VIII. of Circular No. 43 had been misunderstood by some of the District Officers, and that parties had been allowed to take out a single Re. 1 license, in virtue of which they employed a number of men for cutting firewood. Orders were issued accordingly that a separate license must be taken out by each woodcutter.

Timber required by public departments.

194. As regards the supply of timber for public departments from the forests in charge of District Officers, it was ruled in Circular No. 18, dated the 11th of June, 1878, that this should only be done on duplicate indents. Copy of this Circular and prescribed form of indent is attached to this Report as Appendix V.

Royalty on bamboos.

195. In addition to the royalty fixed for forest produce in Circular No. 43, the Chief Commissioner has sanctioned during the year under report the following:—

Jungly or katah bamboo	Re.	1	per hundred.
Jati "	"	2	"
Bhaluka "	"	3	"

Ryots, when requiring bamboos for purely domestic purposes, are exempted from payment of this royalty.

Timber on land allotted for cultivation.

196. Regarding the payment for timber on land allotted for cultivation, the Chief Commissioner has ruled, in Circular Memo. No. 27, dated the 15th October, 1878, that, generally, a tenant taking up fresh land from Government on a yearly pottah need not pay for the reserved trees on the land, unless he wishes to cut them down. If a tenant wishes to cut the timber, he will be charged the usual rates. On land held for a long time on yearly pottah, the tenant will similarly not be required to pay for the timber, unless he wishes to cut it down. Such trees as the tenant or his predecessors may have planted or reared may be felled without payment.

Deputy-Commissioners were also instructed by the Chief Commissioner to explain if in any particular case special circumstances would render any deviation from the above rules advisable.

The area of the forest land allotted during the year in each district for cultivation, and the amount paid for the timber standing on this land, is shown in the following statement:—

Name of District.	Area of forest land allotted for cultivation. Rs.	Amount of forest revenue realised. Rs.	Average amount per acre. Rs. As. P.
Kámrúp	2,079	1,208	0 9 3
Nowgong	6,285	5,546	0 14 1
Darrang	9,111	11,319	1 3 10
Sibságar	13,800	19,382	1 6 5
Lakhimpur	15,125	15,125	1 0 0
Cachar	14,498	8,129	0 9 0
Total	60,898	60,709	0 15 11

Working of the Gáro Hills forests.

197. The forests in the Gáro Hills have been greatly overworked, especially the Sál forests in the northern half of that district, because no conservancy measures could be carried out properly with the small establishment available, as long as timber-felling was permitted all over the district at one time. Accordingly, the system of working the forests in the Gáro Hills has been considered, and it was decided that timber-felling should in future be permitted each year in certain parts of the district only, so as to facilitate control over these operations.

The right to fell timber in a locality decided on will be sold in future by public auction for 12 months, from the 1st of October to the 30th September in the following year, one-third of the purchase-money to be paid at the time of sale, and the other two-thirds before the expiry of the lease.

All trees to be felled are to be measured and marked first by the forester, and one half of the royalty is to be paid before the marking and removal of the timber from the forest. After payment of half the royalty, a pass will be granted for its removal to the revenue station. Here the remaining half of the revenue due will be paid, the timber be marked again with a distinctive mark, and a second pass be granted, permitting the disposal of the timber.

The royalty payable has been fixed for the present as stated below:—

Sâl and Sâna—Trees of five feet and more in girth measured four feet above the ground, Rs. 8 each.

Sisu.
Jarûl
Nageshur
Poma
Gomari
Laukri
Khair
Paroli
Gugura
Sida

} Trees four feet and more in girth measured four feet from the ground, Rs. 4 each.

All other kinds of trees, four feet and more in girth, measured four feet from the ground, Rs. 2 each.

The removal of minor forest produce called "gurkati" in the Gáro Hills is to be allowed, as hitherto, all over the district. The revenue on this account is collected by the luskars, sirdars, and mandals, who receive books of passes signed by the Deputy-Commissioner, which they sell to applicants, if foreigners, at a rupee each, if natives of the Gáro Hills, at six annas each, there being separate passes for the two classes. These passes are granted for the year ending the 31st of March, and the luskars, sirdars, and mandals receive 10 per cent. on the collections they make.

198. A temporary establishment of one forester on Rs. 15 and two forest guards on Rs. 7-8 each per mensem was sanctioned by the Chief Commissioner to assist the Deputy-Commissioner of the Gáro Hills in the management of the forests.

Caoutchouc.

199. The protection of the Rubber-trees continues as difficult and unsatisfactory as heretofore: trees have been found in the district forests, and even in the reserves, freshly tapped, but without the men who committed the theft having been caught. Again, a few men were caught and convicted, and rubber has been confiscated, but such instances are very few and far between, and can hardly be called protection. A very much better control over the trade in rubber is required, and the Inspector-General of Forests has submitted different proposals, which, if sanctioned, will render this control, so very much wanted, practicable.

In the Gáro Hills, the arrangement of buying the rubber at Rs. 20 per maund, and selling it for as much more as can be got, continues. In the Jaintiá Hills the rubber mehal was put up for sale at a public auction for two years from the 1st of April, 1879, to the 31st March, 1881, at an upset price of Rs. 535 per annum, offered for it by an inhabitant of Sylhet, and, as no other bid was made, the mehal was sold for this amount.

200. The registering stations for the export trade from Assam at Dhubri and Bhyrub Bazar were only kept up by the Government of Bengal until October, 1878, so that no exact data regarding the export of Caoutchouc from Assam are available, because since that time the export of rubber by steamers only was registered. The quantities shown under the above circumstances as exported from Assam were the following:—

	1878-79. Maunds.
Goálpára	489
Kámrúp	160
Darrang	989
Nowgong	610
Sibságar	188
Lakhimpur	3,769
Sylhet	105
Cachar	416
Total	6,726

201. The imports of Caoutchouc from non-British territories into Assam during 1877-78 were the following:—

	Maunds.
Into the Goálpára district	83
„ Darrang „	191
„ Lakhimpur „	1,928
„ Sylhet „	404
„ Cachar „	1,039
Total	3,645

The imports into Sibságar and Nowgong are not recorded, as they are not considered to be frontier districts. No Caoutchouc was imported into Kámrúp.

District Officers' forest receipts and charges.

202. The forest revenue collected by District Officers, and the expenditure incurred by them in forest management, is shown under the different service heads in the annual summary (Form No. 49) attached to this Report.

The proportions of the forest revenue collected in each district, and the amount realized during the year under report, as compared with the previous year, are as follow:—

District.	Forest revenue, 1877-78.	Forest revenue, 1878-79.	Increase.	Decrease.
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Gáro Hills	18,642 4 5	31,006 12 4	12,364 4 11	.....
Kámrúp	4,523 10 0	17,508 6 0	12,984 12 0	.....
Nowgong	8,613 9 3	6,593 15 0	.....	2,019 10 3
Darrang	19,286 3 9	15,041 8 10	.....	4,244 10 11
Sibságar	27,2:1 10 6	20,691 1 3	.....	6,530 9 3
Lakhimpur	8,479 9 0	21,598 2 0	13,118 9 0	.....
Nága Hills	24 0 0	24 0 0	.....	.....
Khási Hills	3,711 2 9	1,522 1 6	.....	2,189 1 3
Sylhet	204 1 0	138 0 0	.....	66 1 0
Cachar	2,120 9 0	8,136 3 9	6,009 10 9	.....
Total.....	92,832 14 8	1,22,260 2 8	44,477 4 8	15,050 0 8

The following are the receipts and charges on account of forest management by the District Officers, as compared with the previous year:—

	1877-78. Rs.	1878-79. Rs.
Receipts	92,833	1,22,260
Charges ... A	6,951	4,221
Charges ... B	4,570	4,362
Total charges	11,521	8,583
Surplus	81,312	1,13,677

The forest transactions of the year under civil officers are shown in the following table:—

Receipts.			Charges.	
		Rs.		Rs.
I.—Departmental timber operations	I.	1,759	A I.	1,538
II.—Other revenue	II., III., IV., and V.	1,20,501	A II., III., IV., V., IX., and B., except the forest establishments under the Deputy-Commissioner, Khási Hills	4,345
III.—Formation, protection, and improvements of the forests.	.....	....	A VII., VIII., and cost of forest establishments under the Deputy-Commissioner, Khási Hills.	2,700
	Total	1,22,260	Total.....	8,583

This distribution is the same as was adopted last year, since circumstances remain the same as they were then.

CHAPTER IV.

GENERAL REMARKS.

Permanent Establishment.

203. The permanent forest establishment in Assam was the following during the year under report:—

Superior Staff.

1 Deputy-Conservator.
4 Assistant-Conservators.
1 Sub-Assistant-Conservator.

Subordinate Staff.

	Rs.	Rs.
1 Ranger @ Rs: 80	80	
8 „ @ „ 50	400	480
Monthly maximum amount for foresters, forest guards, &c., &c.	1,073	
Office establishments	596	1,669
Total per mensem		2,149

204. The Cachar division remained without a Forest Officer during the whole year.

It had been contemplated to organize a forest division in the Lakhimpur district, which became impossible, as the Supreme Government sanctioned only one Forest Officer and half the subordinate establishment applied for.

The grounds on which a greater increase of forest establishments was refused were that the information before the Government of India regarding the forests in the Sibságar and Lakhimpur districts was hardly sufficient, and the smallness of forest receipts in Assam.

The Inspector-General's visit to Assam has afforded the Deputy-Conservator an opportunity of explaining the urgent need for increased establishments, and this want has been recognized by the Inspector-General.

205. The above permanent establishment had to be supplemented by a temporary establishment, costing Rs. 10,416 during the year under report.

206. A uniform for forest guards and peons was sanctioned by the Chief Commissioner during the year, which has made these men look with more pride on the duties entrusted to them, and has strengthened their authority in the eyes of the ryots and other inhabitants with whom they come in contact.

Accounts.

207. The forest accounts are rendered in accordance with the rules laid down in the Forest Code, except that District Officers carry forest receipts direct to the credit of revenue, as explained in last Annual Report. This keeps the Assistant-Comptroller-General in charge of the Forest Accounts in ignorance as regards the forest revenue collected by District Officers, and delays the final audit of the Assam Forest Accounts considerably, since the latter cannot be concluded until the Deputy-Accountant-General of Assam closes his accounts for the year. The Deputy-Conservator will submit proposals for re-consideration, that forest receipts by District Officers be entered in the Forest Cash-book (Form No. 14), in connection with the contemplated re-organization of forest management in Assam, by which the present Divisional Forest Officers are to be placed in charge of all forest work in the different districts, under the orders of the Deputy-Commissioners.

208. The right to execute contracts and other instruments in matters connected with the administration of forests, and with the business of the Forest Department generally, was extended by order of the Chief Commissioner, published in the *Assam Gazette* of the 28th of December, page 598, to all Gazetted Officers of the Forest Department, who have qualified for the charge of a forest division, as prescribed in para. 17 of the Forest Code, and limited to Rs. 1,000. Contracts involving an expenditure of more than Rs. 1,000 require the previous sanction of the Deputy-Conservator. In cases in which the contract

or other instrument refers to work extending over a series of years, the sanction of the Local Administration is necessary. No officer of the Forest Department may execute any deed for the purchase and sale of land or any interest in land.

Deputy-Conservator's Tour.

209. On the 18th of November the Deputy-Conservator started from Shillong for Sylhet, and, after having inspected the forest accounts of the Deputy-Commissioner and conferred with him regarding the management of forest work in the Langai and Singla forests, proceeded to Cachar and reached Badarpur on the 27th of November. After an inspection of the Sealtek revenue station, and a thorough inquiry into the system of collecting the forest revenue at this station, Silchar was reached on the 29th of November.

After having conferred with the Deputy-Commissioner and the Assistant-Superintendent of Police in temporary charge of the Cachar forest division regarding the system of collecting forest revenue at Sealtek, the demarcation works in the Lower Jiri and Barák reserves were examined, then the Forest Office was inspected on the 9th and 10th, and on the 11th and 12th timber exports from the Katakhal and Dhaleswari reserves inquired into, and the officer in charge of the Háilákándi sub-division consulted regarding their control.

During the night of the 13th, the Sealtek revenue station was again visited to ascertain how night-control was carried out. After this, the timber trade and conversion of timber and boat-building on the banks of the Barák were inquired into as far as Chhátak. On the 19th December Shillong was reached, and left again on the 27th for the Nongklao Cinchona plantations. On the 8th of January Gauháti was reached, and the Kulsi plantations on the 10th. The inspection of the plantations and fire-lines in the different reserves occupied three days, when the Deputy-Conservator left on the 13th for Gauháti *en route* for the Tezpur division, which was reached on the 17th, and the Charduar plantation on the 18th.

After this plantation had been inspected, the Deputy-Conservator left for the Goálpára division, to meet the Inspector-General, who arrived at the Sankosh on the 4th of February.

All the remainder of the Deputy-Conservator's tour was made in company of the Inspector-General, and comprised the inspection of the forests in the Goálpára forest division, Gáro Hills, Gauháti forest division, Tezpur forest division, Golághát forest division, Sibságar forest division, and the Lakhimpur district south of the Brahmaputra. Shillong was reached on the 20th of April.

The Inspector-General was accompanied afterwards to Jowai on the 4th and 5th of May, which concluded the tour.

Live Stock.

210. Two elephants, three buffaloes, and two bullocks were purchased during the year, and two buffaloes died. No casualties occurred among the elephants, but one of them had a very narrow escape,—having been attacked by a musth tusker in the station of Gauháti: she was overthrown and frightfully gored. The grasscut, who was on the animal at the time, fell underneath and was killed on the spot.

211. The Commissariat Department offered seven elephants to the Forest Department, on the condition that their estimated value be credited to the Military Department.

The Deputy-Conservator inspected most of these animals himself, and had the rest inspected by other officers.

These animals were all more or less in a poor condition, and, on account of this and sore-backs of long standing, unfit for military work.

Four out of these animals were fit to be used for light timber work, and recommended for transfer to the Forest Department free of all payment, either by book-transfer or in cash. The other animals the Deputy-Conservator had to decline on any terms, as they would only have been a burden and expense.

Seven copies of Mr. Slym's Book on Elephants and their treatment were obtained from the Chief Commissioner of British Burma, and distributed to the Divisional Forest Officers in Assam.

Services of Officers.

212. The Goálpára division was in charge of Mr. W. R. Fisher from the commencement of the year until the 14th of September, 1878, when he went on privilege leave, and Mr. D. P. Copeland took charge. Mr. Fisher, on return from leave on the 16th December, 1878, again resumed charge of this division, and retained it until the end of the year.

Progress in the Goálpára division has not been altogether what the Deputy-Conservator could have wished; this is attributed, by Mr. Fisher, to his absence on leave for three months.

The Gauháti forest division remained in charge of Mr. A. J. Mein during the whole year, and the progress here has been in every respect most satisfactory, except fire-protection, and the failure in this was in no way due to want of care or energy on Mr. Mein's part. On the contrary, had it not been for the extraordinary efforts made by him and his subordinates, the damage done by fires would undoubtedly have been far greater than it has been. Mr. Mein's management deserves credit.

The Tezpur forest division was in charge of Mr. W. E. D'Arcy from the commencement of the year until the 29th of August, 1878, when Forest-ranger Jay Narain Das assumed temporary charge until the 6th January, 1879, when he was relieved by Mr. D. P. Copeland, who remained until the close of the financial year. Progress in the Tezpur division has much improved during the year, and been everything that could be desired towards the close of it. It has been a great satisfaction to the Deputy-Conservator to notice the interest and industry with which Mr. Copeland has taken to forest work.

The Golághát forest division was in charge of Mr. H. B. Condon from the commencement of the year until his death, on the 24th of February, caused by a very violent attack of jungle fever. The department has lost in Mr. Condon an energetic officer who had gained much useful local knowledge.

The Sibságar forest division was started on the 8th September, 1878, by Mr. W. E. D'Arcy, who has worked with much energy and done a great deal of very difficult work, which is all the more creditable to him, as it was new, and had to be organized from the commencement.

The Cachar forest division was in temporary charge of Mr. L. Hare, Assistant-Commissioner, from the commencement of the year until the 18th of October, 1878, when Mr. W. B. Savi, Assistant Superintendent of Police, took over charge for the rest of the year. Both officers have taken much interest in forest work, and succeeded in making very good progress in the demarcation work and the effectual control of the timber trade. Both officers had an acting allowance of Rs. 100 per mensem sanctioned by the Chief Commissioner.

ANNUAL FORM No. 45.

FOREST DEPARTMENT, ASSAM.—AREA OF RESERVED FORESTS, 1878-79.

Division or Range.	Name of Forest and Civil District or Territory.	Area on 1st April, 1878.		Added during year.		Excluded or transferred to other heads.		Total on 1st March, 1879.		No. and date of Notifications of additions and transfers, &c.	REMARKS.
		Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.	Square miles.	Acres.		
Direction	Khási and Jaintiá Hills district—										
	Saipung	50	32,000	....	....	....	....	50	32,000		
Goálpára Division..	Goálpára district—										
	Bijni Duar	12	8,038	....	....	....	....	12	8,038		
	Chirang Duar No. 1	108	69,203	....	....	....	....	108	69,203		
	Ditto No. 2. ..	142	90,643	....	....	....	....	142	90,643		
	Ripu Duar	65	41,632	....	....	....	....	65	41,632		
	Guma „	25	15,776	....	....	....	....	25	15,776		
	Sidli „	68	43,757	....	....	....	....	68	43,757		
Gauháti „ ..	Kámrúp district—										
	Barduar	24	15,200	....	....	....	....	24	15,200		
	Pantan	12	7,680	....	....	....	....	12	7,680		
	Matiakhar	3	2,240	....	....	....	....	3	2,240		
	Kulsi plantation	5	3,520	....	....	....	....	5	3,520		
	Jara	2	1,037	....	....	....	....	2	1,037		
	Milmillia	2	1,395	....	....	....	....	2	1,395		
Tezpur „ ..	Nowgong district—										
	Kholahat	3	1,920	....	....	....	....	3	1,920		
	Deboka	1	520	....	....	....	....	1	520		
	Darrang district—										
	Ballpara	88	56,224	....	....	....	....	88	56,224		
	Khaling Duar.....	10	6,240	....	....	....	....	10	6,240		
	Charduar.....	80	51,200	....	....	....	....	80	51,200		
	Bhamraguri	1	386	....	....	....	....	1	386		
	Garumari.....	....	205	....	....	....	....	....	205		
	Nowduar.....	82	52,480	....	....	....	....	82	52,480		
Golághát „ ..	Nága Hills district—										
	Namber	390	249,312	....	....	....	....	390	249,312		
	Mikir Hill	65	41,600	....	....	....	....	65	41,600		
Cachar „ ..	Cachar district—										
	Upper Jiri	24	15,360	....	....	....	....	24	15,360		
	Lower „	14	8,960	....	....	....	....	14	8,960		
	Barak	67	42,880	....	....	....	....	67	42,880		
	Sonai	18	11,520	....	....	....	....	18	11,520		
	Katakhal.....	80	51,200	....	....	....	....	80	51,200		
	Dhaleswari	33	21,120	....	....	....	....	33	21,120		
	Inner Line	509	325,760	....	....	....	....	509	325,760		
	Total	1,983	1,269,008	....	....	....	....	1,983	1,269,008		

FOREST DEPARTMENT, ASSAM.—AREA OF UNRESERVED FORESTS, 1878-79.

Lakhimpur district.	PROTECTED FORESTS—										
	Bhorolwah	8	5,280	....	....	....	....	8	5,280		
	Kuddum	25	15,866	....	....	....	....	25	15,866		
	Parapara	42	26,720	....	....	....	....	42	26,720		
	Upper Dehingmukh	237	151,584	....	....	....	....	237	151,584		
	Dehing	21	13,747	....	....	....	....	21	13,747		
	Jokai	20	12,954	....	....	....	....	20	12,954		
	Solaguri	106	68,122	....	....	....	....	106	68,122		
Sibságar district ..	Panidihinga.....	30	19,200	....	....	....	....	30	19,200		
Sylhet „ ..	Langai and Singla forest	200	128,000	....	....	....	....	200	128,000		
	Total	689	441,473	....	....	....	....	689	441,473		
Undefined forests in charge of District Officers.	NON-GAZETTED FORESTS WITHIN REVENUE LIMITS.										
	Goálpar	14	8,960	....	....	....	....	14	8,960		
	Kamrúp	81	52,160	....	....	....	....	81	52,160		
	Darrang	237	151,781	....	....	....	....	237	151,781		
	Nowgong	52	33,280	....	....	....	....	52	33,280		
	Sibságar	305	195,200	....	....	....	....	305	195,200		
	Lakhimpur	2,040	1,305,727	....	....	....	....	2,040	1,305,727		
	Sylhet	100	64,000	....	....	....	....	100	64,000		
	Cachar	84	53,760	....	....	....	....	84	53,760		
	Beyond Revenue limits ..										
	Khási and Jaintiá Hills	100	64,000	....	....	....	....	100	64,000		
	Nága Hills	525	336,000	....	....	....	....	525	336,000		
	Lakhimpur	1,500	960,000	....	....	....	....	1,500	960,000		
	Cachar	11	7,040	....	....	....	....	11	7,040		
	Garo Hills	351	224,000	....	....	....	....	351	224,000		
	Total	5,400	3,456,838	....	....	....	....	5,400	3,456,838		

FORM No. 46.

FOREST DEPARTMENT, ASSAM.—AREA OF PLANTATIONS, 1878-79.

Division.	Name of plantation.	On 1st April, 1878. Area.	On 1st April, 1878. Total cost.	During 1878-79. Area added.	During 1878-79. Cost.	On 31st March, 1879. Total area.	On 31st March, 1879. Total cost.	Remarks.
	Kulsi plantation.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	Acres.	Rs. A. P.	
Gauhâti	Caoutchouc	86	2,474 0 0	9	870 0 0	95	3,324 0 0	
	Teak	73	7 911 0 0	65	1,788 0 0	138	9,699 0 0	
	Sissu	20	1,117 0 0	....	359 0 0	20	1,476 0 0	
	Chardwar plantation.							
Tezpur	Caoutchouc	573	14,467 0 0	112	9,210 0 0	685	23,677 0 0	
	Reboisement of forest with sâl	....	.....	....	90 0 0	....	90 0 0	
	Bamuni Hill plantation.							
	Caoutchouc	8	865 0 0	....	332 0 0	8	1,197 0 0	
	Lakhimpur District, Makum plantation.							
Civil Officers..	Teak	4	1,266 0 0	....	40 0 0	2	1,306 0 0	The area of the Makum plantation, fairly stocked with plants, has been reduced to 2 acres, since the remainder has had the greater number of trees killed by the borer.
	Khasi and Jaintia Hills district							
	Shillong timber plantation	8	1,266 0 0	....	585 0 0	8	1,851 0 0	
	Nongklao Cinchona plantation..	2	872 0 0	....	100 0 0	2	972 0 0	
	Total.....	774	30,218 0 0	186	13,374 0 0	958	43,592 0 0	

FORM No. 47.

FOREST DEPARTMENT, ASSAM.—AREA OF FOREST TRACTS PROTECTED FROM FIRE DURING THE DRY SEASON OF 1879 (TO ACCOMPANY REPORT FOR 1878-79).

Division.	Forest tracts.	Up to 30th June, 1878. Area actually protected.	Up to 30th June, 1878. Total cost.	During dry season of 1879. Area attempted to be protected.	Failures.	Actually protected.	Amount expended.	Total cost up to 30th June, 1879.	Year when protection commenced.
	Goalpára District.	Acres.	Rs. As. P.	Acres.	Acres.	Acres.	Rs. As. P.	Rs. As. P.	
Goálpára	Sidli	18,510	1,400 0 0	32,334	30,934	1,460	569 0 0	1,969 0 0	1876-77
	Guma	....	415 0 0	16,779	15,479	300	606 0 0	1,021 0 0	,,
	Pechadavery and Panbari	....	23 0 0	....	....	....	.....	23 0 0	1878-76
	Kámrup District.								
Gauhâti	Bardúar	15,200	1,613 0 0	15,200	2,000	13,200	457 0 0	2,070 0 0	1873-74
	Pantan	7,080	1,068 0 0	7,080	6,080	1,000	235 0 0	1,303 0 0	,,
	Matiakhar	2,180	613 0 0	2,240	320	1,920	150 0 0	763 0 0	,,
	Kulsi	3,520	903 0 0	3,520	....	3,520	305 0 0	1,210 0 0	,,
	Jara	1,040	510 0 0	1,040	....	1,040	144 0 0	654 0 0	,,
	Mimillia	1,400	522 0 0	1,400	1,400	....	133 0 0	655 0 0	1874-75
	Darrang District.								
Tezpur	Ballpara	4,500	954 0 0	4,570	....	4,570	383 0 0	1,337 0 0	1873-74
	Garumari	70	201 0 0	70	....	70	48 0 0	249 0 0	1874-75
	Chardúar	....	.....	573	150	423	202 0 0	202 0 0	1878-79
	Bamuni Hill	....	.....	8	....	8	26 0 0	26 0 0	,,
	Nowgong District.								
	Kholahat	1,920	309 0 0	1,920	120	1,800	114 0 0	423 0 0	1873-74
	Deboka	390	151 0 0	390	....	390	117 0 0	268 0 0	,,
	Khasi and Jaintia Hills District.								
Civil Officers	Shillong	3,618	1,618 0 0	3,618	....	3,618	652 0 0	2,270 0 0	1874-75
	Total.....	60,028	10,302 0 0	90,342	57,083	33,259	4,141 0 0	14,443 0 0	

Charged in previous years		9,269 0 0
,, 1878-79		4,085 0 0
,, 1879-80	Goálpára division	388 0 0
	Gauhâti ,, ...	331 0 0
	Tezpur ,, ...	225 0 0
	Civil Officers.....	185 0 0
Total		14,443 0 0

FORM No. 48.

FOREST DEPARTMENT, ASSAM.—PROSECUTIONS FOR BREACHES OF FOREST RULES, 1878-79.

Forest Division and Civil District.	Injury to forests by fire. Cases.	Injury to forests by fire. Persons.	Unauthorized felling or appropriation of wood and minor forest produce. Cases.	Unauthorized felling or appropriation of wood and minor forest produce. Persons.	Grazing without permission or in tracts in which grazing is prohibited. Cases	Grazing without permission or in tracts in which grazing is prohibited. Persons.	Other offences Cases.	Other offences Persons.	Total. Prosecutions. Cases.	Total. Prosecutions. Persons.	Total. Convictions. Cases.	Total. Convictions. Persons.	Remarks.
Goálpára division—													
Goalpara district	4	23	2	3	....	....	....	....	6	26	4	16	One case for unauthorized felling was pending on the 31st March, 1879.
Gauhâti division—													
Kamrup district.....	....	....	1	4	....	....	....	....	1	4	1	4	
Tezpur division—													
Darrang district	....	....	1	5	....	....	....	....	1	5	1	5	
Nowgong ,, ...	....	....	....	....	....	....	....	1	1	1	1	1	
Golâghat division—													
Sibsâgar district.....	....	....	1	1	....	....	....	....	1	1	1	1	
Cachar division—													
,, district	....	....	....	....	....	....	1	1	1	1	1	1	
Civil Officers—													
Nowgong district	....	....	....	....	....	....	3	8	3	8	3	8	
Cachar ,, ...	....	....	....	....	..	....	1	1	1	1	1	1	
Darrang ,, ...	....	....	....	....	....	....	4	43	4	43	3	33	
Lakhimpur ,, ...	....	....	....	....	....	....	5	14	5	11	5	14	
Kámrup ,, ...	....	....	2	3	....	....	....	....	2	3	1	1	
Sibsâgar ,, ...	....	....	1	1	....	....	....	....	1	1	....	....	
Total	4	23	8	17	....	....	15	68	27	108	22	85	

ANNUAL FORM No. 49.

Forest Department, Assam.—Summary of Revenue and Expenditure of the Different Divisions, 1878-79.

Budget Heads.	Direction.	Goálpara division.	Gauhâti division.	Tezpur division.	Golâghât division.	Sibsâgar division.	Cachar division.	Civil Offices.	Total.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
RECEIPTS.									
I.—Timber and other produce removed from the forests by Government Agency—									
a. Timber	4 8 0	2,824 10 3	1,606 4 9	5,567 15 0	774 12 0	.....	.....	.....	10,078 2 0
b. Firewood and charcoal	.....	.....	.....	.....	.....	.....	.....	.....	.....
c. Bamboos	.....	.....	.....	.....	.....	.....	.....	.....	.....
d. Sandal-wood	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce.	.....	.....	.....	.....	.....	.....	.....	1,759 9 8	1,759 9 8
II.—Timber and other produce removed from the forests by consumers or purchasers—									
a. Timber	1,370 0 0	2,132 0 0	4,424 4 0	212 8 0	204 0 0	.....	17,620 0 0	1,18,961 0 11	1,30,033 12 11
b. Firewood and charcoal	.....	66 8 0	.....	.....	132 12 0	.....	14 8 0	1,116 3 9	1,329 15 9
c. Bamboos	.....	.....	2 6 9	.....	.....	.....	617 10 6	.....	620 1 3
d. Grazing and fodder grass	.....	.....	.....	.....	9 6 0	.....	5 0 0	0 4 0	14 10 0
e. Other minor produce	.....	.....	106 12 0	.....	8 2 0	.....	525 9 0	4,885 7 9	5,525 14 9
III.—Confiscated drift and waif wood	.....	.....	.....	10 0 0	42 0 0	.....	192 4 2	537 9 0	781 13 2
IV.—Revenue from forests not managed by Government—									
a. Duty on foreign timber and other forest produce	.....	366 0 0	.....	.....	120 0 0	.....	92 8 0	.....	578 8 0
b. Revenue from shared and private forests	.....	.....	.....	.....	.....	.....	767 13 6	.....	767 13 6
V.—Miscellaneous—									
a. Fines and forfeitures	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Refunds	.....	0 11 3	.....	2 5 9	10 2 9	.....	1 9 8	.....	14 13 5
c. Other sources	.....	245 0 0	15 0 0	79 11 9	31 4 0	.....	3 3 0	.....	374 8 3
Total Receipts	1,374 8 0	5,134 13 6	6,164 11 6	5,872 8 6	1,332 6 9	.....	19,840 2 4	1,22,260 2 8	1,61,779 5 3
EXPENDITURE.									
A.—Conservancy and Works.									
I.—Timber and other produce removed from the forests by Government agency—									
a. Timber	336 11 0	4,757 9 0	3,360 1 9	1,990 1 9	1,598 5 2	.....	.....	.....	11,442 12 8
b. Firewood and charcoal	....	.....	.....	.....	.....	.....	.....	.....	.....
c. Bamboos	....	.....	.....	.....	.....	.....	.....	.....	.....
d. Sandal-wood	....	.....	.....	.....	.....	.....	.....	.....	.....
e. Grass and other minor produce	....	.....	.....	.....	.....	.....	.....	1,538 6 0	1,538 6 0
II.—Timber and other produce removed from the forests by consumers or purchasers	....	.....	.....	.....	.....	.....	7 0 0	603 7 5	610 7 5
III.—Confiscated drift and waif wood	....	6 0 0	.....	.....	3 0 0	.....	7 8 0	.....	16 8 0
IV.—Revenue from forests not managed by Government—									
a. Duty on foreign timber and other forest produce	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Revenue from shared and private forests	.....	.....	.....	.....	.....	.....	.....	.....	.....
V.—Rent of leased forests and payments to shareholders in forests managed by Government	.....	.....	.....	.....	.....	.....	.....	50 0 0	50 0 0
VI.—Live and dead stock—									
a. Purchase of cattle	.....	.....	1,589 0 0	2,000 0 0	.....	.....	.....	.....	589 0 0
b. Feed and keep of cattle	352 4 6	1,528 1 3	3,075 11 0	2,773 1 2	1,357 13 6	133 3 9	38 9 0	.....	9,258 12 2
c. Stores, tools, and plant	1,165 0 6	442 9 9	433 0 0	507 2 3	417 6 9	264 13 6	534 0 9	.....	3,764 1 6
VII.—Communications and buildings—									
a. Roads and bridges	....	35 0 0	147 6 0	1,793 7 7	139 4 0	.....	.....	2 8 0	2,117 9 7
b. Buildings	98 0 0	1,313 10 3	372 11 0	1,242 10 9	1,632 15 4	0 8 0	156 11 0	9 15 0	4,825 1 4
c. Other works	....	.....	.....	.....	.....	.....	.....	.....	.....
VIII.—Demarcation, improvement, and extension of forests—									
a. Demarcation	40 0 0	652 8 0	167 12 3	378 14 0	296 14 0	56 4 0	2,187 0 9	250 0 0	4,024 5 0
b. Compensation for land and rights.	....	.....	.....	.....	.....	.....	.....	.....	.....
c. Surveys and working-plans	306 1 3	658 3 9	1,520 10 3	72 6 0	37 8 0	1,214 5 11	53 0 0	.....	3,862 3 2
d. Plantations	....	.....	3,016 15 6	9,631 14 0	.....	.....	.....	725 12 6	13,374 10 0
e. Protection from fire	....	1,224 15 9	1,374 1 0	819 7 11	.....	.....	.....	646 15 0	4,065 6 11
f. Other works	2 0 0	.....	182 5 0	113 1 6	254 8 0	.....	22 8 0	78 12 3	658 2 9
IX.—Miscellaneous—									
a. Refunds	....	.....	.....	.....	.....	.....	36 3 2	315 7 0	351 10 2
b. Law charges	....	.....	.....	11 4 9	.....	.....	.....	.....	11 4 9
c. Other charges	242 3 11	102 5 3	64 4 6	169 0 4	278 10 9	11 4 0	35 13 9	.....	903 10 6
Total, A.—Conservancy and works	2,542 5 2	10,779 14 3	15,803 14 3	20,897 8 0	6,016 5 6	1,680 7 2	3,077 6 5	4,221 3 2	64,018 15 11
B.—Establishments.									
I.—Salaries—									
a. Conservators	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Superior officers	3,400 0 0	6,400 0 0	4,800 0 0	2,453 0 2	2,803 9 1	2,450 0 0	1,157 10 10	.....	23,464 13 1
c. Subordinate Forest and Depôt Establishments	80 0 0	2,041 3 0	1,799 8 0	3,136 10 11	1,301 14 11	341 6 5	3,001 12 1	4,301 10 9	16,124 2 1
d. Office Establishments	3,935 5 3	528 0 0	527 0 0	479 8 7	524 12 3	215 12 4	649 2 0	.....	6,859 8 5
e. Deputation and special allowances	.....	.....	.....	.....	.....	.....	.....	.....	.....
II.—Travelling allowances—									
a. Conservators	.....	.....	.....	.....	.....	.....	.....	.....	.....
b. Superior officers	1,527 14 0	1,118 3 0	1,266 15 1	983 15 3	1,629 8 0	605 2 6	.....	.....	6,931 10 0
c. Subordinate Forest and Depôt Establishments	.....	.....	.....	37 11 6	.....	.....	.....	.....	37 11 6
d. Office Establishments	11 6 0	.....	.....	.....	.....	7 8 3	.....	.....	18 14 3
III.—Contingencies—									
a. Stationery	3 2 0	8 2 0	.....	1 1 0	1 0 0	1 8 0	7 15 6	.....	22 12 6
b. Carriage of tents and records	37 2 0	64 5 0	27 3 0	21 4 0	.....	30 2 0	0 10 0	.....	180 10 0
c. Rents, rates, and taxes	340 0 0	100 0 0	260 0 0	190 0 0	.....	97 8 0	.....	.....	1,007 8 0
d. Pay of police guards	.....	.....	.....	.....	.....	.....	.....	.....	.....
e. Official postage	289 9 6	87 11 0	63 8 0	76 8 6	50 2 6	37 8 0	53 4 0	.....	658 3 6
f. Sundries	462 5 9	148 5 0	169 11 7	29 6 8	156 3 3	107 0 6	129 4 6	.....	1,202 5 3
Total, B. Establishments	14,906 12 6	10,495 13 0	8,913 13 10	7,409 11 7	6,467 2 5	3,893 8 0	5,059 10 11	4,301 10 9	61,508 8 0
Grand Total of Expenditure	17,449 1 8	21,275 11 3	24,217 12 1	28,307 8 7	12,483 7 11	5,573 15 2	8,137 1 4	8,522 13 11	1,26,027 2 11

FORM No. 50.

DR. FOREST DEPARTMENT, ASSAM.—ACCOUNT CURRENT FOR THE YEAR 1878-79. CR.

		Rs. As. P.	Rs. As. P.			Rs. As. P.	Rs. As. P.
To cash balance on the 1st April, 1878		2,543 8 9	2,543 8 9				
„ revenue received in cash	Direction	4 8 0		By expenditure under "A."	Direction	2,542 1 2	
	Goalpara Division..	4,555 12 9			Goalpara Division....	10,779 14 3	
	Gauhati „ ..	4,807 3 6			Gauhati „	15,256 9 3	
	Tezpur „ ..	1,808 2 2			Tezpur „	20,807 8 0	
	Golaghát „ ..	1 041 10 9			Golaghát „	6,016 5 6	
	Cachar „ ..	19,267 7 4			Cachar „	3,041 3 3	
	Civil Officers	1,22,260 2 8			Civil Officers	3,905 12 2	
			1,53,834 15 2		Sibságar Division	1,680 7 1	
„ revenue adjusted by book-transfer.	Public Works Department.	6,385 8 9					64,119 0 8
	Jail Department ..	1,016 2 4			Direction	14.906 12 6	
	Mathematical Instrument Department.....	20 0 0			Goalpara Division....	10,495 13 0	
	Military Department	10 0 0			Gauhati „	8,962 2 10	
	Medical „ ..	31 2 6		„ expenditure under "B."	Tezpur „	7,409 11 7	
	Deputy-Commissioner of Sylhet.	409 11 3			Golaghát „	6,467 2 5	
	Deputy-Commissioner of Cachar.	121 13 2			Sibsagar „	3,893 8 1	
			7,944 6 1		Cachar „	5,059 10 11	
„ remittances from State Treasuries		1,24,793 8 6	1,24,793 8 6		Civil Officers	4,361 10 9	
„ remittances by transfer from other departments.	Medical Department	186 10 7					61,556 8 1
	Mathematical Instrument Department.	441 15 6		„ refunds and drawbacks		351 10 2	
	Jail Department ..	63 14 0					351 10 2
	Government of India	6 10 5		„ revenue remittances to State Treasuries		1,54,343 3 5	
			699 2 6				1,54,343 3 5
„ contribution to Funds.	Uncovenanted Service Family Pension Fund „.....	923 5 0		„ „ „ adjusted by book-transfer.		7,944 6 1	
	Civil Fund	26 7 2					7,944 6 1
			951 12 2	„ advances recoverable		20,525 14 2	
„ advances recoverable		20,077 1 11	20,077 1 11				20,525 14 2
„ recovery of permanent advances		800 0 0	800 0 0	„ payment of permanent advances		1,700 0 0	
„ deposits received		5 4 0	5 4 0				1,700 0 0
„ suspense		57 0 0	57 0 0	„ cash balance on the 31st March, 1879..		1,166 0 6	
							1,166 0 6
	Total....		3,11,706 11 1		Total		3,11,706 11 1

FORM No. 51.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF OUTSTANDINGS AND LIABILITIES ON ACCOUNT OF CONTRACTORS AND DISBURSERS, 1878-79.

Division.	Department Debtor.			Department Creditor.			Balance due.	
	At commencement of year.	Recoveries in cash, and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To Department (outstandings).	By Department (liabilities).
				Contractors.				
	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P
Direction	.....	403 6 3	403 6 3	283 5 3	255 0 0	538 5 3	234 15 0	.....
Goalpara Division.....	.....	1,461 0 0	1,461 0 0	838 0 0	2,100 7 0	2,938 7 0	1,477 7 0	.....
Gauhati „	.....	284 12 0	284 12 0	.....	284 12 0	284 12 0	.....	.....
Tezpur „	.....	.....	.....	.....	.....	.....	.....	.....
Golaghát „	0 0 3	527 9 3	527 9 6	426 11 3	290 13 3	717 8 6	189 15 0	.....
Sibságar „	.....	90 0 0	90 0 0	.....	110 0 0	110 0 0	20 0 0	.....
Cachar „	.....	1,614 10 0	1,614 10 0	431 2 0	3,934 6 0	4,365 8 0	2,750 14 0	.....
				Disbursers.				
Direction	.....	40 0 0	40 0 0	40 0 0	340 0 0	380 0 0	340 0 0	.....
Goalpara Division.....	.....	1,186 8 6	1,186 8 6	845 10 6	592 8 0	1,438 2 6	231 10 0	.....
Gauhati „	.....	187 10 0	187 10 0	.....	241 14 0	241 14 0	54 4 0	.....
Tezpur „	.....	12,586 13 3	12,586 13 3	2,413 0 0	10,173 13 3	12,586 13 3	.....	.....
Golaghát „	.....	.....	.....	.....	5 0 0	5 0 0	5 0 0	.....
Sibságar „	.....	900 0 0	900 0 0	.....	1,117 8 0	1,117 8 0	217 8 0	.....
Cachar „	.....	130 0 0	130 0 0	115 0 0	315 0 0	430 0 0	300 0 0	.....
Civil Officers	.....	664 12 8	664 12 8	.....	664 12 8	664 12 8	.....	.....
Total	0 0 3	20,077 1 11	20,077 2 2	5,392 13 0	20,525 14 2	*25,918 11 2	5,841 9 0	.....

FORM No. 52.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF OUTSTANDINGS ON ACCOUNT OF REVENUE, 1878-79.

Division.	Particulars.	Outstandings at commencement of year.	Value of sales and other revenue during year.	Total.	Amount realized during year.	Balance due to the Department at end of year.
		Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Goalpara	Price of timber and other produce	209 8 0	632 12 9	838 4 9	536 4 6	297 0 3
Gauhati	Ditto ditto ditto	1,158 5 4	.....	1,158 5 4	926 10 8	.....*
Tezpur	Ditto ditto ditto	2,892 4 0	592 10 8	3,484 14 8	3,484 14 8	.....
Golaghát	Ditto ditto ditto	26 14 0	372 0 0	398 14 0	390 0 0	.....†
	Total.....	4,277 13 4	1,597 7 5	5,875 6 9	5,337 13 10	297 0 3

* The difference of Rs. 231-10-3 is on account of the remission of the 25 per cent. extra charge for selection.

† The difference of Rs. 8-14 is accounted for by an erroneous entry in the Divisional Officer's accounts for the last year.

FORM No. 53.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF TREES FELLED DURING THE YEAR 1878-79.

Division.	Forest Range.	Locality.	Description of trees.	On hand from previous year.		Felled during current year.		Total.		Disposed of during current year.			Closing balance.	
				Number.	C. ft.	Number.	C. ft.	Number.	C. ft.	How disposed of.	Number.	C. ft.	Number.	C. ft.
Goálpára	Eastern Range	Sidli	Sál	.....	.....	39	.....	39	.....	Cut into logs	39			
			Ajhar	.....	.....	696	.....	696	.....	Ditto	696			
			Gunserai	.....	.....	11	.....	11	.....	Ditto	11			
			Tita Sappa	.....	.....	3	.....	3	.....	Ditto	3			
			Sam	.....	.....	19	.....	19	.....	Ditto	19			
			Kharjamu	.....	.....	50	.....	50	.....	Ditto	50			
			Uriam	.....	.....	6	.....	6	.....	Ditto	6			
			Hilika	.....	.....	7	.....	7	.....	Ditto	7			
			Lahiri Poma	.....	.....	3	.....	3	.....	Ditto	3			
.....	Ripu	Banks of Gangia and Felcuna rivers.	Sál	.....	.....	352	.....	352	.....	Ditto	352			
			Ajhar	.....	.....	176	.....	176	.....	Ditto	176			
			Sam	.....	.....	20	.....	20	.....	Ditto	20			
			Hilika	.....	.....	40	.....	40	.....	Ditto	40			
			Jia Poma	.....	.....	2	.....	2	.....	Ditto	2			
			Kharjamu	.....	.....	8	.....	8	.....	Ditto	8			
			Gunserai	.....	.....	2	.....	2	.....	Ditto	2			
Gauhati	Kulsi	Pantan Reserve	Sál	426	.....	402	.....	828	.....	Ditto	605	.....	223	
			Sam	1	.....	2	.....	3	.....	Ditto boats	3			
	„	„	Kathal Bola	.....	.....	9	.....	9	.....	Ditto logs	7	.....	2	
	„	Matiakhar	Sam	1	.....	1	.....	2	.....	Ditto boats	2			
	„	Bardwar	Sál	.....	.....	4	.....	4	.....	Ditto logs	4			
	„	„	Tita Sappa	.....	.....	1	.....	1	.....	Cut into boats	1			
	Rani Open Forest	Pamohi Hill	Sál	120	.....	30	.....	150	.....	Ditto logs	42	.....	108	
	„	„	Sam	3	.....	.....	.....	3	.....	Ditto boats	2			
										Ditto log	1			
Tezpur	Balipara	North of Sál forest	Ajhar	.....	.....	26	.....	26	.....	Ditto dhums	26			
	„	Dharikati „	Gunserai	.....	.....	2	.....	2	.....	Ditto logs	2			
			Bola	.....	.....	8	.....	8	.....	Ditto	8			
			Poma	.....	.....	10	.....	10	.....	Ditto	10			
Golaghát	Nambor Reserve	Nambor forest	Ajhar	.....	.....	310	.....	310	.....	Ditto	310			
			Sam	.....	.....	6	.....	6	.....	Ditto and boats	6			
	„	„	Nahor	.....	.....	20	.....	20	.....	Ditto	20			
	„	„	Hullock	.....	.....	7	.....	7	.....	Ditto boats	7			
	„	„	Poma	.....	.....	1	.....	1	.....	Ditto	1			
			Total	651	.....	2,273	.....	2,834	.....		2,491	.....	333	.....

FORM No. 54.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF LOGS, SLEEPERS, AND OTHER SCANTLINGS CUT AND EXPORTED DURING THE YEAR 1878-79.

Division.	Forest Range.	Locality.	Description of timber and scantlings.	On hand from previous year.		Cut during current year.		Total.		Disposed of during current year.			Closing balance.		Remarks.
				No.	Cubic feet.	No.	Cubic feet.	No.	Cubic feet.	How disposed of	No.	Cubic feet.	No.	Cubic feet.	
Goalpára	Sidli	Bosongaon and Haltagnon	Sál logs	555	.....	53	.....	608	.....	Sent to depôt	138	....	470	....	
,,	,,	,, ,,	Barjamu ,,	3	.....	.....	.....	3	.....	.....	....	....	3	....	
,,	,,	,, ,,	Ajhar ,,	.....	.....	867	.....	867	.....	.....	....	....	867	....	
,,	,,	,, ,,	Gunserai ,,	.....	.....	17	.....	17	.....	.....	....	....	17	....	
,,	,,	,, ,,	Tita Sappa ,,	.....	.....	10	.....	10	.....	.....	....	....	10	....	
,,	,,	,, ,,	Sam ,,	.....	.....	26	.....	26	.....	.....	....	....	26	....	
,,	,,	,, ,,	Kharjamu ,,	.....	.....	77	.....	77	.....	.....	....	....	77	....	
,,	,,	,, ,,	Uriam ,,	.....	.....	6	.....	6	.....	.....	....	....	6	....	
,,	,,	,, ,,	Halika ,,	.....	.....	8	.....	8	.....	.....	....	....	8	....	
,,	,,	,, ,,	Lahiri Poma ,,	.....	.....	5	.....	5	.....	.....	....	....	5	....	
,,	Ripu	Banks of the Felcuna and Gangia rivers.	Sál ,,	.....	.....	589	.....	589	.....	Ditto	71	....	518	....	
,,	,,	,, ,,	Ajhar ,,	.....	.....	211	.....	211	.....	Ditto	24	....	187	....	
,,	,,	Banks of the Felcuna and Gangia rivers.	Sam logs	.....	.....	25	.....	25	.....	Ditto	1	....	24	....	
,,	,,	,, ,,	Hilika ,,	.....	.....	43	.....	43	.....	.....	....	....	43	....	
,,	,,	,, ,,	Jia Poma ,,	.....	.....	2	.....	2	.....	.....	....	....	2	....	
,,	,,	,, ,,	Kharjamu ,,	.....	.....	11	.....	11	.....	Ditto	2	....	9	....	
,,	,,	,, ,,	Gunserai ,,	.....	.....	2	.....	2	.....	.....	....	....	2	....	
Gauhati	Kulsi	Pantan Reserve	Sál ,,	259	.....	1,112	.....	1,371	.....	Ditto	960	....	411	....	
,,	,,	,, ,,	Sam boats ,,	.....	.....	3	.....	3	.....	Ditto	3	....	.....	....	
,,	,,	,, ,,	Kathalbola ,,	.....	.....	14	.....	14	.....	.....	....	....	14	....	
,,	,,	Matiakhar Reserve	Sam boats	.....	.....	2	.....	2	.....	Ditto	2	....	.....	....	
,,	,,	Barduar ,,	Sál logs	.....	.....	4	.....	4	.....	Used departmentally	4	....	.....	....	
,,	,,	,, ,,	Tita Sappa boat	.....	.....	1	.....	1	.....	Sent to depôt	1	....	.....	....	
,,	Rani	Pamohi Hill	Sál logs	86	.....	90	.....	176	.....	Ditto	100	....	76	....	
,,	,,	,,	Sam boats	.....	.....	2	.....	2	.....	Ditto	2	....	.....	....	
,,	,,	,,	Bola log	.....	.....	1	.....	1	.....	Ditto	1	....	.....	....	
,,	,,	,,	Sam ,,	.....	.....	1	.....	1	.....	Useless	1	....	.....	....	
,,	,,	,,	Siharn ,,	.....	.....	1	.....	1	.....	Sent to depôt	1	....	.....	....	
,,	,,	,,	Sal log (dead wood)	.....	.....	18	.....	18	.....	Ditto	18	....	.....	....	
Tezpur	Balipara	Block A	Sál logs	78	.....	.....	.....	78	.....	Ditto	57	....	21	....	
,,	,,	,,	,, (dead wood)	426	.....	170	.....	596	.....	Ditto	374	....	222	....	
,,	,,	,,	,, posts (dead wood)	.....	.....	352	.....	352	.....	Used departmentally Sent to depôt	102 26	....	224	....	
	Chardnar	Banks of the Mansiri river.	Ajhar planks	14	.....	.....	.....	14	.....	Used departmentally	14	....	.....	....	
	Nowdnar	,, Bhairabi ,,	,, pieces	20	.....	.....	.....	20	.....	.....	.....	....	20	....	
	Balipara	North of sál forest	,, logs	205	.....	60	.....	265	.....	Sent to depôt	243	....	22	....	
,,	,,	,, ,,	Gunserai logs	.....	.....	3	.....	3	.....	Ditto	3	....	.....	....	
,,	,,	,, ,,	Bola ,,	.....	.....	19	.....	19	.....	Ditto	19	....	.....	....	
,,	,,	,, ,,	Poma ,,	.....	.....	20	.....	20	.....	Ditto	20	....	.....	....	
Golaghat	Nambor Reserve	Dhansiri river	Nahor logs	25	.....	30	.....	55	.....	Ditto	1	....	54	....	
,,	,,	,,	,, (2nd class)	33	.....	.....	.....	33	.....	Ditto Sold Sent to depôt	15 1 17	....	17	....	
,,	,,	,,	Ajhar logs	26	.....	.....	.....	26	.....	Used departmentally	3	....	6	....	
,,	,,	,,	,, (2nd class)	27	.....	.....	.....	27	.....	Cut into planks	8	....	19	....	
,,	,,	,,	,, planks, 12′×8″×4″	300	.....	463	.....	763	.....	Sold Lost Sent to depôt Cut into planks	40 36 71 146	....	616	....	
,,	,,	,,	,, dhuns	1,166	.....	680	.....	1,846	.....	Sent to depôt Lost Cut into planks	690 1 1	....	1,009	....	
,,	,,	,,	Sam ,,	.....	.....	11	.....	11	.....	Sent to depôt	5	....	5	....	
,,	,,	,,	,, planks	.....	.....	20	.....	20	.....	Used departmentally	20	....	.....	.....	
,,	,,	,,	Hullock logs	.....	.....	1*	.....	1	.....	Sent to depôt	1	....	.....	.....	* 1 drift timber.
,,	,,	,,	Poma boat	.....	.....	1	.....	1	.....	Ditto	1	....	.....	.....	
,,	,,	,,	Sam boats	.....	.....	2	.....	2	.....	Ditto	2	....	.....	.....	
,,	,,	,,	Hullock boats	.....	.....	7	.....	7	.....	Ditto	7	....	.....	....	
			Total	3,223	.....	5,040	.....	8,263	.....		3,253	....	5,010	....	

FORM No. 55.

FOREST DEPARTMENT, ASSAM.—STATEMENT OF TIMBER AND OTHER PRODUCE BROUGHT TO DEPÔT FROM THE DIFFERENT FOREST DIVISIONS, 1878-79.

Division.	Forest.	Description of Timber, &c.	Number of		Total of each division,		Remarks.
			Pieces.	Cubic feet.	Pieces.	Cubic feet.	
Direction	Gauhâti Division	Sâl scantlings	1	3	1	3	
Goalpara	Burimukh	Sâl logs	71	663	.....	.....	
	Ditto	Ajhar „	24	290	.....	.....	
	Ditto	Sam „	1	18	.....	.....	
	Ditto	Kharjamu logs	2	24	.....	.....	
	Kokrajhar	Sâl „	138	747	.....	.....	
	Forest bungalow	„ planks	16	12	.....	.....	These are the remains of planks converted for the bungalow.
	Gauhâti division	„ logs	326	5,585	.....	.....	
	Ditto	Ahay „	3	7	.....	.....	
	....	Gomari „	....	2	531	7,348	Difference with previous measurement.
Gauhâti	Pantan	Sâl „	960	19,016	.....	.....	
	Ditto	Sam boats	3	.....	.....	.....	
	Barduar	Tita sappa boats	1	.....	.....	.....	
	Matiakhar	Sam „	2	.....	.....	.....	
	Rani open forest	Sâl logs	100	1,864	.....	.....	
	Ditto	Sam boats	2	.....	.....	.....	
	Ditto	Sâl logs (dead wood)	18	86	.....	.....	
	Ditto	Bola log	1	43	.....	.....	
	Ditto	Siharu logs	1	19	1,096	21,050	Converted in the Gauhâti depôt.
	Gauhâti depôt	Bola scantlings	6	22	.....	.....	
Tezpur	Balipara reserve	Sâl logs	57	1,144	.....	.....	
	Ditto	„ (dead wood)	400	2,205	.....	.....	
	Ditto	„ (drift wood)	1	.....	.....	.....	
	Ditto	Ajhar logs	243	2,648	.....	.....	
	Ditto	Gunseral logs	3	37	.....	.....	
	Ditto	Bola „	10	275	.....	.....	
	Ditto	Poma „	20	249	.....	.....	
	Ditto	Ajhar planks	....	15	.....	.....	Difference with previous measurement.
	Ditto	Poma „	....	11	743	6,594	
Golâghât	Nambor reserve	Ajhar „ (first class)	521	8,504	.....	.....	
	Ditto	Ditto (second class) ..	186	.....	.....	.....	
	Golâghat depôt	Ditto slabs	2	.....	.....	.....	Converted in the Golaghât depôt.
	Nambor Reserve	Nahor logs (first class)	1	14	.....	.....	
	Ditto	Nahor logs (second class) ..	15	.....	.....	.....	
	Ditto	Sam logs	5	90	.....	.....	
	Ditto	Hollock „	1	32	.....	.....	
	Ditto	Ajhar planks	71	188	.....	.....	
	Ditto	Sam boats	2	.....	.....	.....	
	Ditto	Hollock „	7	.....	.....	.....	
	Ditto	Poma „	1	.....	812	6,828	
		Total	....	.....	3,233	43,823	

FORM No. 56.

FOREST DEPARTMENT, ASSAM.—ACCOUNT OF TIMBER AND OTHER PRODUCE, 1878-79.

Particulars.	Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
Balance at the commencement of the year.				
GOALPARA DIVISION—				
Sál logs	275	5,260	....	....
Jarul „	18	257	....	....
Jia Poma „	2	35	....	....
Bandarkanda „	2	37	....	....
Korai „	2	25	....	....
Gomari „	2	27	....	....
Sam „	4	65	....	....
Gugura „	1	15	....	....
Tita Sappa „	2	32	308	5,748
GAUHATI DIVISION—				
Sál logs	302	4,913	....	....
„ scantlings	136	424	....	....
Poma „	25	13	....	....
Ahay logs	3	24	....	....
Sál „ (dead wood)	86	226	....	....
Sam sleepers	1	4	....	....
Sam boats	3	....	556	5,604
TEZPUR DIVISION—				
Sál logs	15	180	....	....
„ „ (dead wood)	223	719	....	....
Ajhar „	1	14	....	....
„ planks	1,295	2,498	....	....
„ scantlings	11	11	....	....
Bola logs	5	50	....	....
Poma „	1	110	....	....
„ planks	22	11	1,573	3,603
GOLAGHAT DIVISION—				
Poma logs (2nd class)	10	....	....	....
Nahor „ (ditto)	3	....	....	....
Ajhar „ (ditto)	3	....	....	....
„ „ (1st class)	1	13	....	....
Nahor „ (ditto)	2	52	....	....
Hullock boat	1	....	20	65
Received during the year.				
DIRECTION—				
Sál scantlings	1	3	1	3
GOALPARA DIVISION—				
Sál logs	535	6,996	....	....
Jarul „	24	2,90	....	....
Sam „	1	15	....	....
Kharjamu logs	2	24	....	....
Sál planks	16	12	....	....
Ahay logs	3	7	....	....
Gomari	....	2	581	7,348
GAUHATI DIVISION—				
Sál logs	1,060	20,880	....	....
Sam boats	7	....	....	....
Tita Sappa „	1	....	....	....
Sál logs (dead wood)	18	86	....	....
Bola log	1	43	....	....
„ scantlings	8	22	....	....
Siharu log	1	19	1,096	21,050
TEZPUR DIVISION—				
Sál logs	57	1,144	....	....
„ „ (dead wood)	401	2,200	....	....
Ajhar „	243	2,648	....	....
Gunseral „	3	37	....	....
Bola „	19	276	....	....
Poma „	20	259	....	....
Ajhar planks	....	15	....	....
Poma „	....	11	743	6,594
GOLAGHAT DIVISION—				
Ajhar logs (1st class)	521	8,504	....	....
„ „ (2nd class)	180	....	....	....
„ slabs	2	....	....	....
Nahor logs (1st class)	1	14	....	....
„ „ (2nd class)	15	....	....	....
Sam „	5	90	....	....
Hullock „	1	32	....	....
Ajhar planks	71	188	....	....
Sam boats	2	....	....	....
Hullock „	7	....	....	....
Poma „	1	....	812	8,828
Total	....	....	5,690	58,843
Removed by purchasers.				
DIRECTION				
Sal scantlings	1	3	1	3
GOALPARA DIVISION—				
Sál logs	138	2,030	....	....
Jarul „	12	176	....	....
Bandarkanda „	1	22	....	....
Korai „	1	17	....	....
Sam „	2	29	....	....
Jia Poma „	2	33	....	....
Gomari „	2	29	....	....
Tita Sappa „	2	32	....	....
Sál planks	16	12	176	2,382

Particulars.	Pieces. No.	Pieces. C. ft.	Total. No.	Total. C. ft.
GAUHATI DIVISION—				
Sál logs	21	472	....	....
„ „ (dead wood)	25	81	46	553
TEZPUR DIVISION—				
Sal logs	15	258	....	....
„ „ (dead wood)	330	1,114	....	....
Bola „	24	335	....	....
Gunseral „	3	37	....	....
Poma „	21	369	....	....
Ajhar „	2	33	....	....
„ planks	339	687	....	....
Poma „	22	22	756	2,845
GOLAGHAT DIVISION—				
Ajhar logs (2nd class)	48	....	....	....
„ slabs	2	....	....	....
„ planks	16	41	....	....
Nahor logs (2nd class)	15	....	....	....
Sam boats	1	....	....	....
Poma „	1	....	....	....
Hullock „	6	....	89	41
Used by the Department.				
GOALPARA DIVISION—				
Jarul logs	2	24	....	....
Ahay „	3	7	....	....
Sál „	15	225	....	....
Sam „	1	20	21	276
GAUHATI DIVISION—				
Sál logs (dead wood)	16	47	....	....
Bola „	1	43	....	....
Sam boat	1	....	18	90
TEZPUR DIVISION—				
Sál logs (dead wood)	101	360	....	....
Ajhar planks	57	....	158	360
GOLAGHAT DIVISION—				
Nahor logs (1st class)	2	52	....	....
„ „ (2nd class)	3	....	....	....
Poma „ (ditto)	10	....	....	....
Ajhar „ (1st class)	2	50	....	....
„ „ (2nd class)	77	....	....	....
„ planks	9	24	104	126
TRANSFERRED TO OTHER DIVISIONS FROM GAUHATI DIVISION TO GOALPARA DIVISION—				
Sál logs	185	2,660	....	....
„ „ (dead wood)	5	10	190	2,670
Lost during the year.				
GOALPARA DIVISION—				
Sál logs	1	34	1	34
TEZPUR DIVISION—				
Sál logs	10	130	10	180
Balance at the close of the year.				
GOALPARA DIVISION—				
Sál logs	656	9,966	....	....
Jarul „	28	347	....	....
Bandarkanda „	1	10	....	....
Korai „	1	8	....	....
Gugura „	1	15	....	....
Sam „	2	34	....	....
Kharjamu „	2	24	691	10,404
GAUHATI DIVISION—				
Sál logs	1,150	22,628	....	....
„ „ small pieces	6	33	....	....
„ „ (dead wood)	58	174	....	....
„ scantlings	136	424	....	....
Poma „	25	13	....	....
Ahay logs	3	24	....	....
Sam sleepers	1	4	....	....
Bola scantlings	8	22	....	....
Siharu logs	1	19	....	....
Boats	10	....	1,398	23,341
TEZPUR DIVISION—				
Sál logs	47	946	....	....
„ „ (dead wood)	193	1,450	....	....
Ajhar scantlings	11	11	....	....
„ logs	242	2,620	....	....
„ planks	899	1,926	1,392	6,953
GOLAGHAT DIVISION—				
Nahor logs (1st class)	1	14	....	....
Ajhar „ (ditto)	519	8,467	....	....
„ „ (2nd class)	64	....	....	....
Sam „	5	90	....	....
Hullock „	1	32	....	....
Ajhar planks	48	123	....	....
Sam boat	1	....	....	....
Hullock „	2	....	639	8,726
Total	....	....	5,690	58 84

FORM No. 57.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE AMOUNT REALIZED ON ACCOUNT OF DIFFERENT CLASSES OF TIMBER AND OTHER PRODUCE SOLD DURING 1878-79.

Division.	Description of Timber, &c.	Number of pieces, &c., sold.	Cubic Contents.	Amount realized and due on account of sales.	Average amount per log, &c.	Average cubical contents of logs.	Average amount per cubic foot.
			Feet.	Rs. As. P.	Rs. As. P.	ft. in.	Rs. As. P.
Direction	Sál scantlings	1	3	4 8 0	4 8 0	3 0	1 8 0
Goálpára	Sál logs	9	258	386 9 0	42 15 2	28 8	1 8 0
	Ditto	49	697	871 2 8	17 12 5	14 2	1 4 0
	Ditto	40	631	631 4 6	15 12 6	15 0	1 0 0
	Ditto	40	444	332 13 6	8 5 1	11 1	0 12 0
	Jarul logs	12	176	132 4 6	11 0 4	14 8	0 12 0
	Bandarkanda „	1	22	16 4 10	16 4 10	22 0	0 12 0
	Korai „	1	17	12 9 6	12 9 6	17 0	0 12 0
	Sam „	2	29	36 2 3	18 1 1	14 6	1 4 0
	Jia Poma „	2	35	26 12 10	13 6 5	17 6	0 12 0
	Gomari „	2	29	21 12 6	10 14 3	14 6	0 12 0
	Tita sappa „	2	32	24 1 2	12 0 7	16 0	0 12 0
	Sál planks	16	12	23 5 3	1 7 3	0 9	1 14 0
Gauháti	Sál logs	1	26	41 0 3	41 0 3	26 0	1 9 0
	Ditto	20	446	557 1 10	27 13 8	22 3	1 4 0
	Ditto (dead wood)	25	81	81 8 0	3 4 1	3 2	1 0 0
Tezpur	Ditto	1	5	5 15 0	5 15 0	5 0	1 4 0
	Ditto	10	208	208 6 8	20 13 5	20 9	1 0 0
	Ditto	4	45	10 0 0	2 8 0	11 3	0 3 6
	Ditto (dead wood)	5	45	55 15 0	11 3 0	9 0	1 4 0
	Ditto ditto	66	422	422 9 4	6 6 5	6 4	1 0 0
	Ditto ditto	69	647	145 12 0	0 9 0	2 5	0 3 7
	Bola logs	24	325	243 10 0	10 2 8	13 6	0 12 0
	Gunserai „	3	37	28 2 0	9 6 0	12 4	0 12 0
	Poma „	21	369	277 1 0	13 3 1	17 6	0 12 0
	Ajhar „	2	33	25 4 0	12 10 0	16 6	0 12 0
	„ planks	325	650	375 0 0	3 0 0	2 0	1 8 0
	„ ditto	14	37	56 0 0	4 0 0	2 7	.....
	Poma ditto	22	22	22 0 0	1 0 0	1 0	1 0 0
Goálghát	Nahor logs (2nd class)	15	....	45 0 0	3 0 0	.....	.....
	Ajhar „ „	9	....	45 0 0	5 0 0	.....	.....
	Ditto ditto	4	....	16 0 0	4 0 0	.....	.....
	Ditto ditto	34	....	102 0 0	3 0 0	.....	.....
	Ditto ditto	1	....	0 8 0	0 8 0	.....	.....
	Ditto planks	14	36	54 12 0	3 14 6	2 6	1 8 0
	Ditto ditto	2	5	7 8 0	3 12 0	2 6	1 8 0
	Ditto slabs	2	....	1 0 0	0 8 0	.....	.....
	Hullock boats	5	....	250 0 0	50 0 0	.....	.....
	Ditto „	1	....	60 0 0	60 0 0	.....	.....
	Sam „	1	....	100 0 0	100 0 0	.....	.....
	Poma „	1	....	75 0 0	75 0 0	.....	.....
	Total	1,068	5,824	6,431 11 7	6 0 4	5 5	1 1 8
Deduct— Amount due, but not realized, during year				297 0 3			
	Balance			6,134 11 4			
Add— Amount realized on account of former years				3,943 6 8			
Total shown as revenue on account of sales under Budget Head I				10,078 2 0			

FORM No. 58.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE AMOUNT EXPENDED ON THE DIFFERENT CLASSES OF TIMBER AND OTHER PRODUCE BROUGHT TO DEPÔT DURING 1878-79.

Division or Depôt.	Particulars of Timber, &c.	Number of		Expenditure.			Average.		
		Pieces.	Cubic contents.	Timber expenses under A 1.	Quota of all other expenditure chargeable against timber, &c.	Total amount chargeable against timber, &c.	Amount per piece.	Cubic contents per piece.	Amount per cubic foot.
			Ft.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Ft. in.	Rs. As. P.
Direction	Sál scantlings	1	3	337 0 0	.....	337 0 0*	.....	3 0	.....
Goálpára division	„ logs	209	1,410	4,566 0 0	3,469 0 0	8,035 0 0	31 14 1	6 11	4 9 3
	„ planks	16	12						
	Jarul logs	24	290						
	Sam „	1	18						
	Kharjamu logs	2	24						
	Received from the Gauháti Division.—								
Gauháti Division	Sál logs	328	5,585	192 0 0	146 0 0	338 0 0	1 0 5	16 11	0 0 11
	Ahay „	3	7						
	Sál logs	1,060	20,880	3,360 0 0	4,753 0 0	8,113 0 0	7 6 5	19 2	0 6 1
	Sam boats	7	....						
	Tita sappa „	1	....						
	Sál logs (dead wood)	18	86						
	Bola „	1	43						
	„ scantlings	8	22						
	Sharu log	1	19						
Tezpur „	Sál logs	57	1,144	1,390 0 0	4,492 0 0	5,882 0 0	7 14 7	8 10	0 14 3
	ditto (dead wood)	401	2,205						
	Ajhar logs	242	2,648						
	Gunserai „	3	37						
	Bola „	19	275						
	Poma „	20	259						
Goálghát	Ajhar logs (1st class)	521	8,504	1,598 0 0	2,507 0 0	4,105 0 0	5 0 10	10 10	0 7 5
	Ditto (2nd class)	186	....						
	Ditto slabs	2	....						
	Nahor logs (1st class)	1	14						
	Ditto (2nd class)	15	....						
	Sam logs	5	90						
	Hullock „	1	32						
	Ajhar planks	71	188						
	Sam boats	2	....						
	Hullock „	7	....						
	Poma „	1	....						
	Total	3,233	49,795	11,443 0 0	15,367 0 0	26,810 0 0	8 4 7	13 6	0 9 8

* This amount was paid for dragging-gear, distributed to the Goálpára, Gauháti, Tezpur, and Goalghát Divisions.

FORM NO. 59.

FOREST DEPARTMENT, ASSAM.—STATEMENT SHOWING THE REVENUE DERIVED FROM, AND EXPENDITURE INCURRED ON, TIMBER AND OTHER PRODUCE SOLD TO PUBLIC DEPARTMENTS FROM DEPÔT DURING THE YEAR 1878-79.

Name of Department.	Particulars of supplies.	Amount supplied.	Rate. At	Rate. Per.	Amount of Revenue. Due	Received.	Outstanding.	Cost to Forest Department. Timber expenses under A 1.	Quota of all other expenditure chargeable against timber, &c.	Total.	Comparison of Revenue and Expenditure. Surplus.	Deficit.
		ft.	Rs. As.		Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.	Rs. As. P.
Goálpára Division.												
Public Works Department ...	27 Sâl logs	372	1 4	Cubic	464 0 0	464 0 0	.....	1,364 0 0	1,036 0 0	2,400 0 0	.....	1,821 0 0
	7 Jarul „	95	0 12	foot.	72 0 0	72 0 0	.....					
	2 Jia Poma logs	36	0 12	„	27 0 0	27 0 0	.....					
	1 Tita Sappa „	21	0 12	„	16 0 0	16 0 0	.....					
Gauháti Division.												
Public Works Department ...	11 Sâl logs	273	1 4	„	341 0 0	341 0 0	.....	124 0 0	175 0 0	299 0 0	42 0 0	.....
Tezpur Division.												
Jail Department	2 Ajhar „	34	0 12	„	25 0 0	25 0 0	.....	246 0 0	795 0 0	1,041 0 0	.....	89 0 0
	24 Bola „	325	0 12	„	244 0 0	244 0 0	.....					
	20 Poma „	309	0 12	„	232 0 0	232 0 0	.....					
	3 Gunserai „	37	0 12	„	28 0 0	28 0 0	.....					
	5 Sâl „	111	1 0	„	111 0 0	111 0 0	.....					
	52 „ (dead wood)	312	1 0	„	312 0 0	312 0 0	.....					
Golághát Division.												
Public Works Department ...	2 Ajhar logs.....	24	0 12	„	18 0 0	18 0 0	.....	146 0 0	229 0 0	375 0 0	.....	102 0 0
	14 „ planks	37	1 8	„	55 0 0	55 0 0	.....					
	4 Hullock boats	.....	50 0	each.	200 0 0	200 0 0	.....					
	Total.....	.....	.....	.....	2,145 0 0	2,145 0 0	.....	1,880 0 0	2,235 0 0	4,115 0 0	42 0 0	2,012 0 0
										Deduct surplus.....	.....	42 0 0
										Balance against the Department.....	.....	1,970 0 0

FORM No. 60.

FOREST DEPARTMENT, ASSAM.—ABSTRACT SHOWING THE VALUE OF TIMBER AND OF LIVE AND DEAD STOCK FOR THE YEAR 1878-79.

Description of timber and other stock.	On hand at commencement of the year.		Received during the year.		Total.		Sold, otherwise disposed of, and lost during the year, and allowance for depreciation.		On hand at close of the year.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
		Rs.		Rs.		Rs.		Rs.		Rs.
Direction—										
Surveying and other instruments	2	54	4	43	6	97	....	.....	6	97
Office furniture	....	783	....	106	....	889	....	13	....	876
Tents	....	....	1	215	1	215	....	.....	1	215
Miscellaneous	....	2	....	39	....	41	....	1	....	40
Buildings—										
Small houses.....	2	140	....	....	2	140	....	....	2	140
Goálpára Division—										
Timber at depôt	308	6,354	583	7,359	890	13,713	199	3,310	691	10,403
Surveying and other instruments	17	473	2	8	19	481	....	.....	19	481
Tools	....	206	....	250	....	456	....	207	....	249
Office furniture.....	....	247	....	16	....	263	....	.....	....	263
Tents	2	100	2	310	4	410	1	95	3	315
Miscellaneous	....	1,108	....	159	....	1,267	....	417	....	850
Buildings—										
Dhubri bungalow and inspection houses	5	4,520	1	3,400	6	7,920	....	.....	6	7,920
Other houses	10	150	8	480	18	630	....	.....	18	630
Live stock—										
Elephants	2	4,000	1	2,000	3	6,000	....	.....	3	6,000
Gauhâti Division—										
Timber at depôt	556	5,724	1,096	21,257	1,652	26,981	254	3,298	1,398	23,683
Surveying and other instruments	12	144	23	141	35	285	....	.....	35	285
Tools	....	481	....	140	....	621	....	45	....	576
Office furniture	....	228	....	123	....	351	....	.....	....	351
Tents	....	455	....	185	....	640	....	240	....	400
Miscellaneous	....	533	....	515	....	1,048	....	143	....	905
Buildings—										
Kulsi plantation bungalow	1	4,000	....	.....	1	4,000	....	.....	1	4,000
Other houses.....	19	344	9	50	28	394	....	.....	28	394
Live stock—										
Elephants	7	12,400	1	1,500	8	13,900	1	2,000	7	11,900
Buffaloes	....	.....	3	89	3	89	1	29	2	60
Tezpur Division—										
Timber at depôt	1,573	2,863	743	7,570	2,316	10,433	924	3,312	1,392	7,121
Surveying and other instruments	7	283	4	66	11	349	5	220	6	129
Tools	....	965	....	195	....	1,160	....	145	....	1,015
Office furniture.....	....	700	....	123	....	823	....	.....	....	823
Tents	2	100	....	.....	2	100	....	.....	2	100
Miscellaneous	....	293	....	336	....	629	....	81	....	548
Buildings—										
Bhairabighat bungalow and inspection houses.	2	4,200	....	.....	2	4,200	....	.....	2	4,200
Other houses	28	820	11	217	39	1,037	....	.....	39	1,037
Live stock—										
Elephants	4	6,800	2	2,600	6	9,400	2	4,800	3	4,600
Buffaloes	5	209	....	.....	5	209	1	40	4	169
Golâghât Division—										
Timber at depôt	20	90	812	7,505	832	7,595	193	850	639	6,745
Surveying and other instruments	8	166	2	15	10	181	1	5	9	176
Tools	....	670	....	69	....	739	....	27	....	712
Office furniture	....	227	....	66	....	293	....	9	....	284
Tents	1	50	....	.....	1	50	....	.....	1	50
Miscellaneous	....	488	....	494	....	982	....	154	....	828
Buildings—										
Golâghat bungalow and inspection houses.	5	3,400	....	1,400	5	4,800	....	.....	5	4,800
Other houses	11	388	....	.....	11	388	....	.....	11	388
Live stock—										
Elephants	2	4,000	1	2,000	3	6,000	....	.....	3	6,000
Bullocks	....	.....	2	97	2	97	....	.....	2	97
Sibsâgar Division—										
Surveying and other instruments	....	.....	11	359	11	359	....	.....	11	359
Tools	....	.....	2	2	2	2	....	.....	2	2
Office furniture	....	.....	11	252	11	252	....	.....	11	252
Tents	....	.....	2	200	2	200	....	.....	2	200
Miscellaneous	....	.....	15	96	15	96	....	.....	15	96
Live stock—										
Elephants	....	.....	2	3,000	2	3,000	....	.....	2	3,000
Cachar Division—										
Surveying and other instruments	7	163	....	.....	7	163	....	.....	7	163
Tools	....	28	....	140	....	168	....	5	....	163
Office furniture.....	....	241	....	200	....	441	....	.....	....	441
Miscellaneous	....	947	....	100	....	1,047	....	20	....	1,027
Buildings—										
Small houses.....	4	97	1	40	5	137	1	8	4	129
Civil Officers—										
Tools	....	1,645	....	.....	....	1,645	....	.....	....	1,645
Miscellaneous	....	30	....	36	....	66	....	.....	....	66
Buildings—										
Small house	....	.....	1	150	1	150	....	.....	1	150
Total	....	72,289	....	65,733	....	13,8,022	....	19,474	....	1,18,548

NOTE.—Difference in value at commencement and close of the year, Rs. 46,259.

GUSTAV MANN,
Deputy-Conservator of Forests, Assam.

SHILLONG:
The 1st August, 1879.

APPENDIX I.

Schedule of Government Reserved Forests in the Province of Assam notified under Section 34 of the Indian Forest Act, 1878, in the Assam Gazette *of the 19th October, 1878, page 487.*

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
Goálpára ...	Duar Bijni ...	Bijni Duar Reserve...	North.—Bhutan frontier. South.—The boundary of Khairbana mouzah. East.—The boundary of Khairbana mouzah. West.—The Kukolung Nadi.
Ditto ...	Duar Chirang ...	Chirang Duar Reserve (eastern part).	North.—The Bhután frontier. South.—The Sidli Duar. East.—The Bara Bhur Nadi for some distance, then along the southern boundary of Bhumigaon Jhar mouzah in a westerly direction, and then along the Champamati River. West.—The Sowmaka Nadi and the western boundary of Lymati Jhar mouzah.
Ditto ...	Ditto ...	Chirang Duar Reserve (western part).	North.—The Bhután frontier. South.—The southern boundary of Jonagaon mouzah; then along the Hail Nadi in a northerly direction, along the southern boundary of Singmai Jamee mouzah down the Saralbhanga River for a short distance, and through Gobdagaon Aphal mouzah, as demarcated by the Revenue Survey. East.—The Sowmoka Nadi and west boundary of Lymati Jhar mouzah, which is also the eastern boundary of Kochu Bari Jhar, Totpara mouzah. West.—The Polo and Gangea Nadies, and the western boundary of Janagaon Salbari mouzah.
Ditto ...	Duar Ripu ...	Ripu Duar Reserve ..	North.—The Bhután frontier. South.— The Jakati river to its junction with the Gauti river, and up this stream and the Deosali River and the Pekna River to the point where it meets the Kachugaon Jhar mouzah boundery, and along this boundary to the Gangea River. East.—The Polo and Gangea Nadies and the western boundary of Janagaon Salbari mouzah, which is also the eastern boundary of Kochugaon Jhar. West.—The Ranga or Jakati Nadi.
Ditto ...	Duar Guma ...	Guma Duar Reserve..	North.—High land as demarcated by the Revenue Survey. South.—Murshong Jhara and pergunnah Parbat Joar. East.—The Tepkai Jhora and pergunnah of Parbat Joar. West.—The Bownye Nadi.
Ditto ...	Duar Sidli ...	Sidli Forest Reserve.	North.—The boundary of the Chirang Duar from the Khasi Kuri river in the west, to the Champamati river in the east, as shown on the Revenue Survey map of 1867-69 and 1873-75. East.—The Champamati River from the Chirang Duar boundary in the north, to a boundary-mound marked A; thence the cultivated lands of Banspari and Bosongaon, to a boundary-mound marked B, on the Taring River; thence down the Taring river to the Moira Jhora, and up this Jhora and along a survey line bounding the cultivated land of Garubasa, first in an easterly and then in a northerly direction to a boundary-mound C, on the Champamati River thence down the Champamati River to a boundary-mound, D, as shown in the Revenue Survey map of 1867-69. South.—A survey line running in a south-westerly direction from the boundary-mound marked D, to the Taring River; thence first in a north-westerly and afterwards in a south-westerly direction to a boundary-mound marked E, on the Gaurang River; thence down this river to a boundary-mound marked F; thence a survey line running north of the cultivated lands of Haltagaon to a boundary-mound marked G, on the Sowmoka river, as shown on the Revenue Survey map of 1867-69 and 1874-75. West.—The Sowmoka river from the boundary-mound marked G in the south, to its junction with the Khási Kuri River; thence up the latter to the point where the boundary of the Chirang Duar crosses it, as shown on the Revenue Survey map of 1867-69.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
Goálpára	Duar Chirang ...	First addition to the western part of the Chirang Duar Reserve.	North.—The southern boundary of the present Chirang Duar reserve, from the Khasi Kuri river in the west, to the Sowmoka river in the east. East.—The Sowmoka river, from the present southern boundary of the Chirang Duar reserve, to the crossing of the northern boundary of the Sidli Duar, west of Udhabgaon. South.—The northern boundary of the Sidli Duar, from the Sowmoka river in the east to the Khasi Kuri river in the west. West.—The Khasi Kuri river from the boundary of the Sidli Duar in the south to the southern boundary of the present Chirang reserve.
Kámrúp	Barduar Mouzah ..	Barduar Reserve.....	North.—A line along the foot of the hills skirting the paddy-fields of Niagaon, Tea Maripara, Aleeha, and Chowtolla. East.—Along the foot of the hills skirting the paddy-lands of Borosalla, Ghagorachak, Gheenabari, Poejanee, and Jopongbari, up to a small feeder of the Moiranadi; down this feeder to the main stream, and along the same and the Lower Assam Company's southern boundary up to the Batanadi; thence along the path at the foot of the hills, skirting cultivation and village of Kamranga, up to the Chaka Khal, and along it and path leading to Bohotpur. South.—Along the edge of the forest skirting the villages of Bohotpur and Rajapara; then along path up to the Kulsi khal, and along the Kulsi khal to the Kulsi river. West.—The Kulsi river.
Ditto	Pantan and Bogai Mouzah.	Pantan Reserve	East.—The Kulsi river from the Bherbheri beel to a Khási village, which is situated nearly west of Dewalee beel, but on the opposite side of the river. South.—Along the north bank of the Bherbheri and Lamkharpara beels, which are situated exactly at the foot of the hills; then along the bottom of the hills up to the Kulsi river, and up the Kulsi river to the junction of its feeder, the Dorun; then along the Dorun to the cultivation of U Kiam, round the village, and back to the Dorun, and up the same to its feeder, the Bokoladuar Nadi. West and North-West.—Along the Bokoladuar Nadi to its source at the Bura Langa Parbat; then down the Dungai Doonga (which rises in the same hill) to the village of Gangaduar; here the boundary leaves the stream and goes along the foot of the hills, skirting the cultivation and paddy lands of Gangaduar, Jhalukbari, and Bokhorabara to the Danga Duar, then along it through two beels up to the Khási village.
Ditto	Matiakhar Mouzah	Matiakhar Reserve..	West.—The Batanadi, which runs along the foot of the hills up to the villages of Pookapanpara, and along the foot of the hills, passing behind the Barduar (Lower Assam Tea Company's) bungalow, and past the village of Nokaree, up to a large beel which lies at the foot of the Deemabeel Parbat. North and North-East.—Up a small feeder which falls into this beel to top of Deemabeel; then down the Umthoma to its junction with the Umsuru river. South-east and South.—Along the foot of the hills, in the valley of the Umsuru, passing the villages of Kenapara and Bandapara, up to the Batanadi.
Ditto	Pantan Mouzah...	Kulsi Plantation Reserve.	West.—A line running from the boundary-mound east of the village of Bahupur, in a north-westerly direction, to the southern extremity of the narrow beel running parallel with the river Kulsi from Bahupur to Jogeebaree; and thence in a half circle east of the latter village until it joins the Hatikhonda river north of Jogeebaree; thence along the right bank of the latter river up the small feeder which connects it with the Andari beel. North.—The small feeder which connects the Hatikhonda river with the Andari beel up to the cultivation of the Boglibari village, and the southern boundary of this cultivation up to the Nia nadi.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of Boundaries.
			East.—The Nia nadi from the paddy-fields of Boglibari to the paddy-fields of Balijuli; then a line round these fields and back to the Nia nadi, and up to the northern boundary of the cultivated lands of the Golia village. South.—The northern boundary of the cultivated lands of Golia village from the Nia nadi to the Kulsi river to the boundary-mound east of the Bahupur village.
Kámrúp	Bholagaon Mouzah	Jara Sâl Forest Reserve.	North.—The old district road, which runs through the mouzahs of Moirapur, Barduar, and Pantan from the paddy-fields of Noapara to the paddy-fields of Toganpara. West.—The paddy-fields of Toganpara, Tanguapara, and Chali up to the Sorku nadi. South.—The Sorku nadi, from the cultivation of Chali to the cultivation of Moragaon, and a line due east to the Chotapani river. East.—The Chotapani river up to the paddy-fields of Noapara, and then the edge of the paddy-fields up to the district road.
Ditto	Chhaygaon Mouzah	Milmillia Sâl Forest Reserve.	North.—The Fulguri beel from the Kulsi river to the cultivation of Khalbari. West.—The cultivation of Khalbari up to Nosuni hill, and the foot of Nosuni hill up to the old district road, which goes from the Kulsi to the Grand Trunk Road. South.—This road from Nosuni Hill to the cultivation of Patgaon, and the cultivation of Patgaon up to the boundary of the land held by Mr. C. B. Smith, then Mr. Smith's boundary up to the Kola-apa-kharijan, and the Kola-apa-kharijan to its junction with the Kulsi nadi. East.—The Kulsi nadi, from the junction of the Kola-apa-kharijan to the junction of Fulguri beel.
Ditto	Barduar Mouzah..	The first addition to the Barduar Reserve.	North.—The Bagmarajan. East.—The Bagmarajan up to the village of Dhangargaon, and the paddy-fields of Dhangargaon to the foot of the Barduar Hills, and then the foot of these hills to the village of Teamaripara. N.B.—The foot of these hills is the present boundary of the Barduar reserve. South.—A line skirting the cultivation of Teamaripara and Dalangmaiang up to a small feeder of the Nia nadi. West.—The Nia nadi, from its junction with this small feeder to its junction with the Bagmarajan.
Ditto	Ditto ...	The second addition to the Barduar Reserve.	North.—The cultivated lands of the village of Barosala. East.—The foot of the Ghagorachok Hill from the cultivated lands of Barosala to the Mureea nadi, thence up the latter stream to a point nearest to the Barduar forest reserve. South and West.—A straight line running east and west from the Mureea nadi to the Barduar forest reserve, and the eastern boundary of the latter.
Darrang.....	Balipara Mouzah.	Balipara Reserve ...	North.—The line fixed by the British Boundary Commissioners between the Aka Hills and British territory, from the Mansuri river to the Bhairabi river. East.—The Bhairabi river from the British boundary to the Miri village, and a survey line west of this village. South.—A survey line running south-west and west from the Miri village to the Mansiri river. West.—The Mansiri river from the southern boundary to the British boundary.
Ditto	Bengbari and Jhaprapara Mouzah.	Khaling Duar Reserve.	North.—The line fixed by the British Boundary Commissioners between the Bhután Hills and British territory, from the Nonai or Kulsi river to the Bhola Nadi. East.—The Bhola Nadi, from the British boundary to a boundary-mound marked A. South.—A survey-line running due west from the boundary-mound marked A on the Bhola nadi to a boundary-mound marked B, on the Nonai or Kulsi river. West.—The Nonai or Kulsi river, from the boundary-mound marked B to the British boundary.
Ditto	Dolabari Mouzah.	Bhamaraguri Hill Reserve.	North and West.—Base of the Bhamaraguri Hill. South.—The river Brahmaputra. East.—A suti of the Bhairabi river.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
Darrang.....	Hollessur mouzah	Garumari Sál Forest Reserve.	North.—The southern boundary of a grant of waste land No. 2, belonging at present to the Agra Bank. East.—A survey line running in a south-easterly direction from the south-east corner of grant No. 2 to the junction of a small stream with the Mara Bhairabi river. South.—The Mara Bhairabi river, and a survey line running from the latter due west, and measuring 1,255 feet in length. West.—A survey-line running due north from the south-western corner of the reserve to the southern boundary of grant No. 2 and measuring 8,701 feet in length.
Ditto	Balipara Mouzah.	Chardnar Rubber Plantation Reserve (eastern part).	North.—The line fixed by the British Boundary Commissioners between Bhután and Aka Hills and British territory from the Dipota river on the west, to Mansiri river on the east. East.—The Mansiri river from the point where it enters British Territory to a point marked A, situated about a mile (more or less) from the confluence of the Khar Kola Koli with the Mansiri. South.—A straight line running due west from the point marked A on the Mansiri river through the southern side of the Moran Pukri, to a point marked B, on the Dipota river. West.—The Dipota river from the point B upwards to the point where it enters British territory.
Ditto	Ditto ...	Chardnar Rubber Plantation Reserve (western part).	North.—The line fixed by the British Boundary Commissioners between Bhután and Aka Hills and British territory from the Belsiri river on the west to the Dipota river on the east. East.—The Dipota river from the point where it enters British territory to a point marked C. South.—A straight line running due west from the point marked C on the Dipota river to a point marked D on the Belsiri river. West.—The Belsiri river, from the point marked D upwards to the point where it enters British territory.
Ditto	Bokola Mouzah ..	Nowduar Reserve ...	North.—The line fixed by the British Boundary Commissioners between the Aka Hills and British territory from the Bhairabi river to the Bar Dikrai river. East and South.—The Bar Dikrai river, from its exit from the Aka Hills to its junction with the Bhairabi river. West.—The Bhairabi river, from its junction with the Bar Dikrai river to its exit from the Aka Hills.
Nowgong	Kholahat Mouzah	Kholahat Reserve ...	North.—The northern boundary of the grants Khola (No. 46) and Amjari (No. 47), both resumed by Government, up to the Khola mouzah eastern boundary-line. East.—Along Khola mouzah eastern boundary-line from the northern boundary-line of Amjari grant (No. 47) to the foot of the Khási Hills. South.—The foot of the Khási Hills and Kholahat river up to the Nowgong and Gauháti Trunk Road. West.—Along the Trunk Road from the Kholahat river up to the northern boundary of the late Khola grant (No. 46), now resumed by Government.
Nowgong ...	Kholahat mouzah	First addition to the Kholahat Reserve.	(*Eastern tract*).—East.—A small mountain stream, being the first one west of the Baragoge grant (No. 49), from a point on it due east from the north-eastern corner of the present Kholahat reserve to the point of its exit from the Khási Hills district. South.—The foot of the Khási Hills, from the small mountain stream forming the eastern boundary of this forest to the present eastern boundary of the reserve. West.—The eastern boundary of the present Kholahat forest reserve. North.—A straight line running due east from the north-eastern corner of the present Kholahat reserve to the small mountain stream forming the eastern boundary of this forest. (*Southern tract*).—East.—The foot of the Khási Hills from the present Kholahat reserve to a small mountain stream immediately north-east of the cultivated lands of Mikir para.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
			South.—The latter mountain stream, from its exit from the Khási Hills to the paddy-field situated east of the Gauháti and Nowgong road. West.—The paddy-field situated east of the Gauháti and Nowgong road. North.—The small mountain stream forming the southern boundary of the present Kholahat reserve.
Nowgong	Deboka Mouzah ..	Deboka Reserve. ...	West and North.—The foot of the Mikir Hills from southern boundary of the former Government reserve No. 229, up to the Gangadasi river. East.—The Gangadasi river from the foot of the Mikir Hills to its junction with the Dikharu river, and the Dikharu river from its junction with the Gangadasi to its junction with the Jamuna. South.—The Jamuna river from its junction with the Dikharu river to Mikirgaon, and the old survey-line of the former Government reserve No. 229, from Mikirgaon up to the Mikir Hills.
Nága Hills ...	Barpathar Mouzah	Nambor Reserve ...	North.—The Dhansiri river from its junction with the Dayang river to its junction with the Turajan, thence the Turajan from its mouth to its source, and from thence a straight line across to the Daigurung river. South.—Along the whole course of the Barhilonijan, from its exit at the foot of the Rengma Hills to its junction with the Dhansiri, and from thence along the road between Barpathar and Jamaguri. East.—The Dayang river, from its junction with the Dhansiri river up to the Jamagurighat. West.—The foot of the eastern slopes of the Rengma Nága Hills and the Daigurung river from its exit from those hills to the point where the northern boundary-line cuts it.
Ditto ...	Ditto ...	Addition to the Nambor Reserve.	North.—The Bar Neoriajan, from the Rengma Hills to its confluence with the Dhansiri river, the latter from its confluence with the Bar Neoriajan to the foot-path leading from the Dhansiri river opposite Barpathar to the Dayang river opposite Jamaguri fort, which is the southern boundary of the present Nambor reserve. South.—The foot of the Nága Hills from the exit of the Rengmapani to the exit of the Bokajan from the hills; thence the Bokajan from its exit from the Nága Hills to its junction with the Dhansiri river; thence down the latter to its junction with the Hariajan; thence up the latter stream from its junction with the Dhansiri to its exit from the Rengma Hills. East.—The Dayang river from the Jamaguri fort to its junction with the Rengmapani, thence up the latter to its exit from the Nága Hills. West.—The foot of the Rengma Hills from the exit of the Hariajan to the exit of the Bar Neoriajan.
Nága Hills ...	Mikir Hills ..	Mikir Hill Reserve...	North.—The Langkangtang, from its source to its junction with the Tamoijuri; the Tamoijuri from its junction up to the ridge between the Langkangtang and the Barpung rivers, then along this ridge to a feeder of the Barpung; and this feeder from its source to its junction with the Barpung; along the Barpung from this feeder to its source; from the source of the Barpung along the crest of the ridge between the Barpung and Bardeopani rivers; from source of Barpung up to a feeder of the Taripung. East.—The last-named feeder, down to its junction with the Taripung, and then the Taripung to its junction with the Kaliani river. South.—The Kaliani river; from the junction of its feeder, the Taripung, to the junction of its feeder, the Manikjuri. West.—The Manikjuri from its junction with the Kaliani river to its source at Saringvok Hill, then a boundary-line from the source of the Manikjuri to the source of the Langkangtang.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundary.
Khási and Jaintiá Hills.	Jowai Sub-division.	Saipung Reserve ...	West and South.—From Jakorsing Peak along the ridge which connects it with the Pangklo Peak; thence along this range first in a south-easterly and then in an easterly direction, to a point above the source of the Dikisim River; thence down this river to its junction with the Kopili river. East.—The Kopili river from its junction with the Dikisim river to its junction with the Wakandriem river. North.—The Wakandriem from its junction with the Kopili river to its junction with the Saipung river; thence up this river to its source on the Jakorsing peak.
Cachar ...	Lakhipur ...	Upper Jiri Reserve...	West.—The Digli River, from its junction with the Jiri River in the south to the boundary of the Digli grant; thence the south-eastern boundary of this grant to its north-eastern corner on the Digli river; thence again up the Digli river to the northern limit of the Revenue Survey of 1864-68. North.—The northern limit of the Revenue Survey of 1864-68 between the Digli and the Jiri rivers. East and South.—The Jiri river from northern boundary of this reserve to its junction with the Digli river.
Ditto ...	Ditto ...	Lower ditto ...	West.—A line running from the north-western corner of the Alni grant (No. 201) on the Barák river, to the foot of the Ramphan range, as marked on the Revenue Survey map of 1864-68; thence along the ridge of this range to the crossing of the Manipur road. North.—The Manipur Road, from the ridge of the Ramphan range to north-western corner of the Jiri grant (No. 31). East.—The south-western boundary of the Jirighat grant from the Manipur road to the Jiri river, thence down the Jiri river to its junction with the Barák river. South.—The Barák river from its junction with the Jiri river to the south-eastern corner of the Alni grant (No. 201), thence the northern boundary of this grant to its north-western corner on the Barák river.
Ditto ...	Bonraj ...	Barák Reserve ...	West.—The Sonai river, from the crossing of the Inner Line, in the south, to its junction with the Bhubun khal; thence up the Bhubun khal to its source on the Bhubun range; thence along the ridge of the Bhubun range in a northerly direction to the junction of the Chinjoor river with a tributary stream, as marked on the Revenue Survey map of 1864-68; thence down the Chinjoor river to the foot of the Bhubun range, situated north of the Chinjoor river; thence along the ridge of that range to the south-eastern corner of the Dilkush grant (No. 146), on the Barák river. North and East.—The Barák river from the south-eastern corner of the Dilkush grant (No. 146) to the north-eastern corner of the Bhubundhur grant; thence the northern and western boundaries of this grant, the western boundary of the Doobhudhur grant (No. 255), and the western and southern boundary of the Mainadhar grant (No. 260), to the south-eastern corner of the latter grant on the Barák river; thence the Barák river to the Inner Line. South.—The Inner Line, from the Barák river in the east to the Sonai river in the west.
Cachar ...	Davidsonabad, Bonraj and Chatlahowas.	Sonai Reserve ...	West.—The Rukmini river from the crossing of the Inner Line to its junction with the Sonai river. North and East.—The Sonai river, from its junction with the Rukmini river to she north-western corner of the Dhurmee Khal grant (No. 186); thence the western boundary of this grant and the northern and western boundary of the Monierkhal grant until it meets the Inner Line.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
Cachar ...	Háilákándi and Vernerpur.	Katakhal Reserve ...	South.—The Inner Line, from the Monierkhal grant in the east to the Rukmini river in the west, West and North.—The ridge of the Boorun range from the Booruncherra Tea Company's land in a northerly direction to the southern boundary of the Rupacherra grant, as marked on the Revenue Survey map of 1864-68; thence the southern boundary of the Rupacherra grant from the Boorun range in the west, to the eastern boundary of that grant; thence along the eastern and northern boundaries of that grant to the Katakhal; then this river from the north-western corner of the Rupacherra grant to the south-western corner of the Hasioorah grant (No. 125); thence the southern and eastern boundaries of the latter grant to the southern boundary of the Jafferbund or Goglacherra grant (No. 61), thence along this boundary and the southern boundary of the Sonarbund grant (No. 175) and the southern boundary of the Loharbund grant (No. 130), until the point where the latter meets the Jalinga Nadi; thence up the Jalinga Nadi to the point where it meets the Inner Line. East.—The Inner Line from the point on the Jalinga Nadi, in the north, to the north-eastern corner of the Booruncherra grant. South.—The northern boundaries of the Booruncherra Tea Company's land, from the Inner Line in the east to the Boorun range in the west.
Ditto ...	Vernerpur ...	Dhaleswari ,,	West.—The boundary of the Sylhet district, from the western end of the Cachar Inner Line to Rupatang guard. North.—The road leading from the Rupatang guard to the western boundary of the Alexandrapore grant. East.—The western boundary of the Alexandrapore grant from the point where the road coming from the Rupatang guard crosses it, to the north-western corner of the Cutlicherra grant; thence the western and southern boundaries of the latter grant, to the south-eastern corner of that grant on the Dhaleswari river; thence up this river to the crossing of the Inner Line. South.—The Inner Line from the Dhaleswari river in the east, to the Sylhet boundary in the west.
Ditto ...	None	Inner Line ,, ...	West.—the boundary between Sylhet and Cachar, from the Lushai boundary in the south to the Inner Line in the north. North.—The Inner Line, from the Sylhet boundary in the west, to the Barák river in the east, as defined in the Government of India Notification No. 2,299P., dated the 20th August, 1875, published in the *Assam Gazette* of the 11th September, 1875, page 497. East.—The Barák river, from the Inner Line in the north, to the Lushai boundary in the south. South.—The Lushai boundary, from the Barák river in the east, to the Sylhet boundary in the west.

APPENDIX II.

Schedule of Government Protected Forests in the Province of Assam notified under Section 34 of the Indian Forest Act, 1878, in the Assam Gazette *of the 19th October, 1878, page* 494:—

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
Sylhet ...	None ...	Langai and Singla Forests.	West.—The Tipperah boundary from Vomsual peak, in a northerly direction, to Thal post, on the Thal Nadi; thence along the eastern ridge of the Patharia range up to the Trigonometrical station of Adam Tila, as marked on the Revenue Survey map of 1863-64. North.—The southern base of the Pesalurah or Patakandi range from the Trigonometrical station of Adam Tila to the Langai river; thence up the Langai river to its junction with the Dengra Chera; thence up this stream to its source on the Dewalia range; thence along the ridge of the range in a southerly direction to the source of the Pata Koonee Cherra; thence down the stream to its junction with the Singla River; thence down this river to its junction with the Bhootoon Cherra; thence up this stream to its source on the Chátáchura or Siddeshur range of hills. East.—The boundary between Sylhet and Cachar, from the source of the Bhootoon Cherra to the Great Trigonometrical Survey station on the Chátáchurá Hill. South.—The Tipperah boundary from the Great Trigonometrical Survey station on tha Chátáchura Hill in the east, to the Great Trigonometrical Survey station on the Vomsual Hill in the west.
Lakhimpur ...	Bharolwah Mouzah.	Bharolwah Forest ...	North.—The Hinnee Jan from the point where it crosses the Rajgarh Ali in the west, to its junction with the Ranga Nadi. East.—The Ranga Nadi from its junction with the Hinnee Jan to Merigaon village, situated north-east of Kampti beel. South.—A foot-path leading from the above Merigaon village to Hingara Nadi; thence up this stream to its junction with the Ranga Jan; thence up the latter stream to the point where it crosses the Rajgarh Ali, as marked on the Revenue Survey map of 1870-71. West.—The Rajgarh Ali, from the point where it is crossed by the Ranga Jan to the point where it is crossed by the Hinnee Jan, as marked on the Revenue Survey map of 1870-71.
Ditto ...	Kuddum Mouzah..	Kuddum Forest ...	North.—A line running due east from the Kuddum Nadi to the Mooree Chagor Nadi; thence down the latter stream to its junction with the Nomajee Jan; thence the latter stream to its junction with the Chagor Nadi; thence down the latter stream to its junction with the Goonah Suti, as marked on the Revenue Survey map of 1870-71. East.—The Goonah suti from its junction with the Chagor Nadi to the point where the road from Lakhimpur meets it, as marked on the Revenue Survey map of 1870-71. South.—The Lakhimpur road from the Goonah Suti to the Dhal Nadi. West.—The Dhal Nadi from the Lakhimpur road to its junction with a suti which connects the Dhal Nadi with the Kuddum Nadi; thence this suti and up the Kuddum Nadi to the western extremity of the northern boundary of this forest, as marked on the Revenue Survey map of 1870-71.
Ditto ...	Parapara Mouzah	Parapara Forest ...	North.—The Brahmaputra river from the Terna Suti in the west to the Daliajan in the east. East.—The Daliajan from the Brahmaputra in the north to the Dibru river in the south. South.—The Dibru river from its junction with the Daliajan to its junction with the Borola Suti, as marked on the Revenue Survey map of 1867-70.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
			West.—The Burola Suti, from its junction with the Dibru River to its junction with the Terna Suti; thence the latter stream to the Brahmaputra, as marked on the Revenue Survey map of 1867-70.
Lakhimpur ...	Chapatoli, Pawal, and Makum mouzahs.	Upper Dehing Forest	North.—The Bar Hap Jan from its junction with the Chota Hap Jan to the point where it crosses the road leading from Teensukia to Dum-dum; thence the northern and western boundaries of grant No. 111, the western and southern boundaries of grant No. 109; the southern boundary of grants Nos. 48 and 132; thence the eastern boundary of the latter grant to the Dibru river; thence up the latter river to where the Pangarigarh meets it. East.—The Pangarigarh from the Dibru river to the Pangarijan; thence up this stream to the point where it is crossed by the footpath leading to the Manma Nadi, and along the latter footpath until it meets the Manma Nadi; thence down the latter stream to its junction with the Dehing river, as marked on the Revenue Survey map of 1866-69. South.—The Dehing river from its junction with the Manma Nadi to the western boundary of grant No. 5, Tippum, as marked on the Revenue Survey map of 1866-69. West.—The western boundary of grant No. 5, Tippum, from the Dehing river to the Rajgarh Ali, as marked on the Revenue Survey map of 1866-69; thence the Rajgarh Ali in a northerly direction to the eastern boundary of grant No. 128; then the latter boundary to the Chota Hap Jan, and down the latter stream to its junction with the Bar Hap Jan.
Ditto ...	Larna Mouzah ...	Dehingmukh Forest.	North.—The Larna Jan, from its junction with the Brahmaputra to a point where it is met by an old abandoned road. East.—Along the above old abandoned road from the Larna Jan in a southerly direction to the Sessa Nadi, as marked on the Revenue Survey map of 1867-71; thence the Sessa Nadi to its junction with the Dehing river. South.—The Dehing river from its junction with the Sessa Nadi to its junction with the Brahmaputra river. West.—The Brahmaputra river from its junction with the Dehing river to its junction with the Larna Jan.
Ditto ...	Jokai and Kotoha Mouzahs.	Jokai Forest ...	North.—The southern boundary of grant No. 14, Sessabari, from the Sessa Nadi in the west to the Ghogra Jan in the east, as marked on the Revenue Survey map of 1866-69; thence down the Ghogra Jan to its junction with the Sessa Nadi; thence up the Sessa Nadi to the point where the western boundary of grant No. 1, Jokai, meets it. East.—The western and part of the southern boundary of grant No. 1, Jokai, and the western boundary of grant No. 28, Hasrapather, to the Dehing river. South.—The Dehing river from grant No. 28, Hasrapather, to an old abandoned road east of Nowgong village; thence along this road in a north-easterly direction to the Nao Jan; thence the latter stream to its junction with the Sessa Nadi, as marked on the Revenue Survey map of 1866-69. West.—The Sessa Nadi from its junction with the Nao Jan to grant No. 14, Sessabari.
Ditto ...	Jaipur Mouzah ...	Solaguri Forest ...	North.—The Hapnee Ali from the Solaguri Ali to grant No. 26 Solaguri: thence the western, southern, and eastern boundary of this grant to where it meets again the Hapnee Ali; thence along the Hapnee Ali to where it meets the road connecting it with the Rajgarh Ali. East.—The road connecting the Hapnee Ali with the Rajgarh Ali, from the point where it joins the Hapnee Ali in a southerly direction to where it cuts the northern boundary of grant No. 18, Gurbagan Tinkhan; thence along the northern and western boundary of the latter grant to the Rajgarh Ali.

District.	Pergunnah or other sub-division.	Name of Forest.	Description of boundaries.
			South.—The Rajgarh Ali from grant No. 18, Gurbagan Tinkhan, to grant No. 22, Joriapokhur; thence the eastern, northern, and western boundary of that grant to where it meets again the Rajgarh Ali, thence the latter road to the boundary of the Sibságar district; thence along the boundary of the Sibságar district until it meets grant No. 40, Ilingra Jan; thence the eastern and northern boundary of the latter grant until it again meets the boundary of the Sibságar district, and along the latter boundary up to the Solaguri Ali.
			West.—The Solaguri Ali from the boundary of the Sibságar district to the point where it meets the Hapnee Ali.
Sibságar ...	Panidihingia-Soluwan Mouzah.	Panidihingia Forest.	West and North.—The Nao Jan, from its junction with the Dimu Nadi to the point where it is crossed by the Nága Ali.
			East.—The Nága Ali from the point where it crosses the Nao Jan to the point where it crosses the Dimu Nadi.
			South.—The Dimu Nadi from the point where it is crossed by the Nága Ali to its junction with the Nao Jan.

APPENDIX III.

Statement of results of Valuation Surveys made in the Barduar Reserved Forest, Kámrúp District, Assam.

Block I.—First Addition to the Barduar Reserve.

No. of line.	Position of line of Survey.	Number of trees counted. Sál. I. Under 1′ 6″	II. From 1′ 6″ to 3′	III. From 3′ to 4′ 6″	IV. From 4′ 6″ to 6′	V. Above 6′	Area of forest surveyed. Acres. Sál forest.	Lower hill forest.	Grass land.	Total.	Remarks.
1	From southern boundary of forest near Dolongmolong village north to northern boundary.	0·6	384	57	19	1	11·30	13·00	7·13	31·43	Good young high Sál forest as far as it extends, as shown on map, but somewhat patchy, especially to north. Seedlings abundant in patches, but otherwise disseminated.
2	From Tiámárá village lands north to northern boundary.	0·6	819	46	10	.....	11·85	14·00	6·81	32 66	On the west side of line old cultivation for 20 chains; grass and lower hill forest to east, then thick poles rather badly burnt, then better, but patchy and mixed to north, after which grass to northern boundary.
3	From foot of hills on eastern boundary north to boundary of forest.	0·8	456	34	3	1	13·85	.....	16·56	30·41	Sál forest, scattered at first; then thick poles badly burnt and much hacked about, towards the north more mixed, then ceases, after which grass jungle and scrub intersected with beels up to northern boundary.
9	From a point on eastern boundary of forest due west to Niá Nadi.	.....	.....	.....	.....	.....	.....	.....	17·00	17·00	Nothing but grass jungle and a few scattered bushes on this line.
10	From boundary-post No. 25 south of Patháliápará due west to Niánadi.	0·3	291	34	7	2	20·00	.....	1·50	21·50	Scattered poles for a few chains, then a patch of thick young Sál forest, which gets very scattered again further on, and continues so up to the western boundary. Seedlings scanty.
11	From eastern boundary near village of Dhangargáon due west to Niá Nadi.	0·5 to 1·	864	25	12	8	21·00	.....	2·00	23·00	Thick young Sál forest the whole way, mostly all pure, and no patches of grass lands. Seedlings fairly abundant.
12	From foot of hills on eastern boundary due west to boundary-post No. 11 at Dolongmolong village.	0 9	620	65	13	1	14 00	.....	.....	14 00	Good young poles all along line, with very little lower hill forest, and no grass worth mentioning. Seedlings abundant.
	Total.....	.....	3,434	261	64	13	92·00	27 00	51·00	170·00	
	Contents of block.....	.....	33,145	2,519	617	125	888·07	260 63	492 30	1,641	
	Number of trees per acre, excluding grass land and lower hill forest.	.....	37 3	2·83	0 7	0·14					
	Number of trees per 100 acres, excluding grass land and lower hill forest.	.....	3,732	283	70	14					
	Number of trees per 100 acres, including grass land and lower hill forest.	.....	2,020	153	37	7					

No of line.	Direction of line of Survey.	Number of trees counted.									Area of forest surveyed.				Remarks.
		Sâl.					Makria.				Acres.				
		I.	II.	III.	IV.	V.	II.	III.	IV.	V.	Sâl forest.	Hill Lower Forest.	Grass lands.	Total.	
		Under 1' 6"	From 1' 6" to 3'	From 3' to 4' 6"	From 4' 6" to 6'	Above 6'	From 1' 6" to 3'	From 3 to 4' 6"	From 4' 6" to 6'	Above 6'					
3	From foot of hills on southern boundary of first addition to the Barduar Reserve south over hills to Khokapara village lands.	0·5	969	464	109	7	6	16	23	6	45·4	5·7	3·9	55·0	First, scattered Sâl on steep hill side, then better, very rocky and precipitous, western exposure; seedlings abundant, then patchy to district road, after which fair high Sâl forest over hills, to level ground on other side; then grass and swamp with patches of Sâl alternating to foot of Khokápárá Hills over which the line passes, here Sâl is scanty and mixed to southern side of hills, then grass and a small strip of close-growing poles up to Khokapara village lands.
4	From boundary-post No. 4, south, over hills to Barahalla.	0·3	172	61	12	...	...	...	...	...	16·0	...	...	16·0	Lower hill forest for 29 chains on line, but scattered Sâl to east and west, then also on line to top of hills, after which better seedlings disseminated, then good high forest somewhat mixed occasionally to foot of hills on south.
5	From boundary-post No. 129, south of Golia, on Kulsi river, east over hills to the Moira nadi.	0·5	861	331	56	2	5	16	7	1	36·5	2·2	2·9	41·6	From foot of hills scattered Sâl, then good and mixed alternating over several hills for a mile, then good high forest with occasional breaks to a fine piece of Sâl growing thickly at foot of hills eastern side, then swamp with high grass to foot of next hill, where there is good Sâl forest; seedlings abundant up to line No. 3, after which not so good to east, then mixed forest and grass to foot of Ghagrachuk hill, over which fair Sâl forest to Moira nadi. Seedlings abundant.
6	From Kulsi river east over Haragaon Hill to Moira nadi.	0·2	353	353	109	10	8	11	3	5	28·7	2·0	4·7	35·4	Sâl scattered at first on steep hill side, then more plentiful up to top of Harogaon, 1,350 feet elevation to east; excellent Sâl forest, then not so good, but alternating to eastern side of hills up to Moira nadi; seedlings on this line disseminated.
	From Kulsi river east over hills to Ghúnabari village.	0·6	315	201	45	...	7	5	2	1	28·4	...	5·4	33·8	Very scanty at first, then better, but alternating and patchy to Tengakhali Parbat, where there is a lot of Nahor to south, but does not fall on line, then fairish Sâl forest. Seedlings disseminated to foot of hills, east side, after which grass with a patch of Sâl-saplings to eastern boundary at Ghunabari village.

12	From Kulsi river east over hills to Moira nadi.	0·9	991	486	109	7	18	11	5	1	47·9	2·2	4·2	54·3	Sâl scattered at first, then fairly good; seedlings abundant to boundary-post No. 53 at Pujala village, then alternating over hills to east side, thence thick Sâl forest intersected by several beels; to the Moira Nadi.
13	From boundary-post No. 29 of first addition to the Barduar reserve south over Kala Gohain Hills to foot at Ghagrachuk.	0·3	294	167	41	7	33	16	9	...	19·3	...	...	19·3	A few saplings at foot of hills, then very scarce to top of hills, where there is a very fair sprinkling of Sâl not so mixed, then scattered all downhill to boundary. Seedlings disseminated to scanty.
14	From western foot of Kala Gohain Hill, north-east of Tiamara, east over hills to boundary-post No. 13, south of Aliha village.	0·2	200	60	4	1	35	33	11	5	23·5	2·0	...	25·5	Sâl very scattered over hills, and very mixed the whole way. Seedlings scanty.
15	From foot of hills at east of Tiamara village east over Kala Gohain Hill to boundary-post No. 21, east of Borhalua village.	0·3	435	317	55	1	44	38	9	2	23·8	...	...	23·8	Very patchy up to line No. 13, where there are some fine trees, fairly good Sâl forest after this up to boundary. Seedlings disseminated.
16	From boundary-post No. 32 at the cultivation of Ghagrachuk south over Manickpur Hill to Moira nadi.	0·3	97	73	5	...	7	10	3	2	10·2	...	1·0	11·2	Sâl fairly distributed all over hill, then grass and scattered trees. Seedlings disseminated.
17	From Nowgaon village east over hills, &c., to boundary-post No. 31 at the edge of district road at cultivation of Ghagrachuk.	0·3	396	218	32	10	18	14	3	2	23·3	3·00	...	26·3	Fairly good young forest. Seedlings abundant to top of small hill, then small patch without Sâl, then Sâl again pretty thick, 2nd and 3rd-class trees, after which patchy to top of ridge and down to boundary. Seedlings on the whole abundant.
18	From Kulsi river east over hills, then through plains to Moira nadi.	0·5	331	158	60	5	11	5	3	1	22·1	1·1	6·5	29·7	Scattered Sâl over hill somewhat mixed to Borogorong. Seedlings disseminated, then patchy and bad with bamboos, seedlings scanty, after this a good bit of Sâl forest with some 3rd and 4th-class trees for 20 chains, then more scattered down to foot of hills on east. Seedlings scanty, at foot of hills strips of bamboos, then grass and beels and patches of Sâl alternating to Moira nadi.
19	From Kulsi through Dewan Beel east over Hills to Moira nadi.	0·2	291	104	32	19	19	14	4	14	29·1	2·7	5·6	37·4	Sâl scattered over hills through several old jhums mixed with bamboo. Seedlings scanty.
20	From Kulsi east over Borhari, &c., hills to boundary-post No. 43 at the foot, north of Khokapara.	0·2	450	182	31	2	5	2	...	...	27·2	1·0	...	28·3	First, strip of grass and mixed forest, then Sâl scattered over hills, which are very steep and rocky on other side near Khokapara; bamboos not so plentiful on this line, but seedlings scanty.
21	From Kulsi through Thekra Beel east over hills, then through plains to boundary-post No. 49, north-west of Khopdia village.	0·9	804	307	49	13	29	14	2	...	29·6	...	8·4	38·0	After crossing beel at foot of hill, Sâl scattered, much mixed with Daloa bamboo, seedlings disseminated to abundant, Sâl thicker to east on level ground, where seedlings are also more abundant.
22	From south of Khokapara village south through plains to boundary-post No. 50 at east of Pujala.	0·4	121	6	3	...	1	...	...	...	4·6	...	[illegible]	11·9	On this line, which is all on the level, Sâl occurs principally in the centre, intersected with beels and patches of grass. The line passes through site of abandoned village. Seedlings disseminated in patches.

BLOCKS II., III., AND IV.—(*Continued.*)

No. of line.	Direction of line of Survey.	Number of trees counted.									Area of forest surveyed.				REMARKS.
		Sâl.					Makria.				Acres.				
		I.	II.	III.	IV.	V.	II.	III.	IV.	V.					
		Under 1' 6"	From 1' 6" to 3'	From 3' to 4' 6"	From 4' 6" to 6'	Above 6'	From 1' 6" to 3'	From 3' to 4' 6"	From 4' 6" to 6'	Above 6'	Sâl forest.	Hill Lower Forest.	Grass lands.	Total.	
23	From the west end of valuation survey line No. 6 at the edge of the Kulsi south over hills to valuation survey line No. 8 at the top of Bangalibila Hill.	0·05	143	157	46	6	10	19	11	9	20·0	...	7·3	27·3	Mixed forest and grass, with many bamboos and Sâl, only scattered, but good on ridges. Daloa bamboos plentiful. Seedlings disseminated.
24	From boundary-post No. 132, west of Noagaon village, south over hills, &c., to valuation survey line No. 8 at the Máorájá Hill.	0·2	755	326	111	25	16	19	11	10	56·4	...	6·0	62·40	First, Sâl thick in patches up hills with Kakoáh bamboos to Dewan beel. More bamboos and less Sâl to line No. 7, where there are a number of Nahor seedlings up to line 21, after this Sâl scattered to line No. 8, where it is thicker. Seedlings scanty.
25	From the cultivation of Dolongmolong pass boundary-post No. 142 south over hills to valuation survey line No. 19 on the Sagalsari hill.	0·3	511	117	22	6	4	7	...	1	32·0	1·7	...	33·7	Thick young Sâl forest to foot of hills, then more scattered up to line No. 19. Seedlings scanty.
26	From boundary-post No. 145, south of Tiamárá village south over hills, &c., to foot, at the north of Khokapara village.	0·2	812	290	54	2	19	18	11	1	44·1	2·9	4·2	51·2	First little Sâl, then thick poles and high forest to line No. 5, and thence fairly good, but alternating to line No. 18, scattered on hills with Kakoáh bamboos; good Sâl Forest near line No. 6, with a good many 3rd-class trees, then alternating and patchy down hill to Khokapara. Seedlings fairly abundant.
	Total.....		9,301	4,378	985	123	295	268	117	61	568·4	24·4	69·3	662·1	
	Contents of blocks		100,189	47,159	10,600	1,324	3,177	2,886	1,260	657	6,122	262 7	746·3	7,131·	
	Number of trees per acre, excluding grass land and lower hill forest		16 36	7 70	1·73	0·21	0·51	0·47	0·20	0·10	...	...	...	...	
	Ditto ditto per 100 acres, excluding grass land and lower hill forest		1,636	770	173	21	51	47	20	10	...	...	...	...	
	Ditto ditto including grass land and lower hill forest		1,404	661	148	18	44	40	17	9	...	...	...	...	

A. J. MEIN,
Asst.-Conservator of Forests, Gauháti Division.

APPENDIX IV.

Register of lands taken up by the Forest Department for Timber Depôts.

GOALPARA FOREST DIVISION.

Goálpára District.

I.—The Dhubri Depôt.—Situated in the sub-divisional station of Dhubri, the head-quarters of the Divisional Forest Officer, west of the Dhubri rock, on the north side or right bank of the Brahmaputra river.

Area.—3 acres, 1 rood, 38 poles. (No chur land is included in this area.)

Boundaries.—North.—The road leading past the post-office from the Cutcherry to the bazaar from boundary-post No. 1 at foot of the hill on which the Dhubri Chapel is situated, to boundary-post No. 2, opposite to the Dhubri Cemetery.

West.—A trench bearing 156° 10′ from boundary-post No. 2 to the low-water-line of the Brahmaputra river.

South.—The low-water-line of the Brahmaputra river, from the western boundary to the road leading from the steamer godowns to the bazaar road.

East.—The road leading from the steamer godowns to the bazaar road at the hill on which the Dhubri Chapel stands, and round the base of this hill to boundary-post No. 1.

II.—The Suriamukh Depôt.—Situated at Suriamukh, in pergunnah Gurla, on the right bank of the Gadadhar and Bownye rivers, about 6 miles to the south of the Guma reserve.

Area.—12 acres and 16 poles.

Boundaries.—East and North.—The low-water-line of the Gadadhar and Bownye rivers, from boundary-mound No. 1 to boundary-mound No. 2.

West.—A trench bearing 138° 30′ from boundary-mound No. 2 to boundary-mound No. 3.

South.—A trench bearing 87° 50′ from boundary-mound No. 3 to boundary-mound No. 1.

III.—The Bogribari Depôt.—Situated at Bogribari, in pergunnah Parbatjuar, on the right bank of the Sunkos river.

Area.—6 acres, 1 rood, 16 poles.

Boundaries.—North.—A trench bearing 128° from the low-water-line of the right bank of the Sunkos river to boundary-mound No. 2.

West.—A line bearing 42° from boundary-mound No. 2 to boundary-mound No. 5, then a trench bearing 180° from boundary-mound No. 5 to the low-water-line of the Brahmaputra river.

South and East.—The low-water-line of the Brahmaputra and Sunkos rivers from the southern extremity of the western to the eastern extremity of the northern boundary.

IV.—The Belasipara Depôt.—Situated at Belasipara, in pergunnah Chapar, on the right bank of the Gaurang river.

Area.—8 acres, 1 rood, 7 poles.

Boundaries.—North.—A survey line bearing 289° 30′ from low-water-line of the right bank of the Gaurang river, to boundary-mark No. 1 on the road leading towards Fakiragaon.

West.—The road leading towards Fakiragaon from boundary-mark No. 1, a distance of 18 chains and 8 links to boundary-mark No. 2.

South.—A survey-line bearing 108° 45′ from boundary-mark No. 2 to the low-water-line of the Gaurang river.

East.—The low-water-line of the Gaurang river from the eastern extremity of the southern to the eastern extremity of the northern boundary.

V.—The Kokrajhar Depôt.—Situated at Kokrajhar, in pergunnah Khuntaghat, on the left bank of the Gaurang river.

First Part.

Area.—14 acres, 2 roods, 12 poles.

Boundaries.—North.—A trench bearing 273° 30′ from boundary-mound No. 1 to the low-water-line of the left bank of the Gaurang river.

West and South.—The low-water-line of the left bank of the Gaurang river from the western extremity of the northern to the southern extremity of the eastern boundary.

East.—A trench bearing 30′ from the low-water-line of the Gaurang river to boundary-mound No. 1.

Second Part.

Area.—1 acre and 32 poles.

Boundaries.—North.—A trench bearing 251° 30′ from boundary-mound No. 1 to boundary-mound No. 2.

West.—A trench bearing 162° from boundary-mound No. 2 to boundary-mound No. 3.

South.—A trench bearing 72° from boundary-mound No. 3 to boundary-mound No. 4.

East.—A trench bearing 342° from boundary-mound No. 4 to boundary-mound No. 1.

Note.—The low-water-line for the time being of all the rivers on which these depôts are situated is kept accessible to the public for the purpose of navigation.

GAUHATI FOREST DIVISION.

Kámrúp District.

I.—The Kukurmara Depôt.—Situated at Kukurmara, in mouzah Chhayani, on both banks of the river Kulsi, at the crossing of the Grand Trunk Road from Gauháti to Goálpára.

First Part.

Situated on the left bank of the Kulsi river, south of the Trunk Road.

Area.—4 acres, 3 roods, 6 poles.

Boundaries.—West and North.—The Grand Trunk Road from boundary-mark No. 3 to boundary mark No. 4.

East.—The Kulsi river from boundary-mark No. 4 to boundary-mark No. 1.

South.—A survey line bearing 256° 45′ from boundary-mark No. 1 to boundary-mark No. 2, and another bearing 293° 15′ from boundary-mark No. 2 to boundary-mark No. 3.

Second Part.

Situated on the left bank of the Kulsi river north of the Trunk Road.

Area.—4 acres, 2 roods, 33 poles.

Boundaries.—West.—A survey-line bearing nearly due north from boundary-mark No. 5 for a distance of 4·74 chains to boundary-mark No. 6, on the edge of some cultivation, and thence the edge of this cultivation to boundary-marks Nos. 7, 8, and 9, the last of which is situated on the Bheumari Beel.

North.—The Bheumari Beel from boundary-mark No. 9 to boundary-mark No. 10, and thence the Bheumari Jan, for a distance of 3·00 chains to boundary-post No. 11; thence survey-lines bearing 74° 45′, 22°, and 161° 45′ for distances of 2·30 chains, 3·06 chains, and 2·62 chains, respectively, to boundary-marks Nos. 12, 13, and 14, the last on the bank of the Kulsi river.

East.—The Kulsi river from boundary-mark No. 14 to boundary-mark No. 15.

South.—The Trunk Road from boundary-mark No. 15 to boundary-mark No. 5.

Third Part.

Situated on the right bank of the river Kulsi opposite Part 1.

Area.—5 acres, 2 roods, 11 poles.

Boundaries.—West and North.—The Kulsi river from boundary-mark No. 17 to boundary-mark No. 16 at Pola Dobha.

East.—A survey-line bearing 213° 15′, for a distance of 9·38 chains from boundary-mark No. 16 to boundary-mark No. 18.

South.—A survey-line bearing 266° from boundary-mark No. 18 to boundary-mark No. 17, a distance of 2·62 chains.

II.—The Gauháti Depôt.—Situated at the western extremity of the station of Gauháti at Bharalumukh in mouzah Ramsha, on the left bank of the Brahmaputra river, at its junction with the Bharalu Nadi.

Area.—1 acre, 1 rood, 5 poles.

Boundaries.—West.—A demarcation-trench alongside the cholera hospital premises from boundary-mark No. 2 to boundary-mark No. 1, on the bank of the Brahmaputra river, a distance of 2·42 chains.

North.—The Brahmaputra river from boundary-mark No. 1 to the mouth of the Bharalu Nadi.

East.—The Bharalu Nadi from its junction with the Brahmaputra river to boundary-mark No. 3 at the corner of the police-station premises.

South.—A demarcation-trench along the edge of the police premises from boundary-mark No. 3 to boundary-mark No. 2, a distance of 3·10 chains.

III.—The Nagorbera Depôt.—Situated on the left bank of an arm of the Brahmaputra river to the south-west of Nagorbera Hill, in mouzah Pachim Chamoria, just below the confluence of the Kulsi, Singra, and Kurnee rivers.

Area.—8 acres, 2 roods, 18 poles.

Boundaries.—West.—A survey-line bearing 335° 30′ from boundary-mark No. 5 to boundary-mark No. 6, a distance of 1 chain 9 links, and a line marked by a ditch and bank from boundary-mark No. 6 to boundary-mark No. 7, a distance of 4·06 chains, and from boundary-mark No. 7 to boundary-mark No. 1, on the bank of the Brahmaputra river, a distance of 3 chains 5 links.

North.—The Brahmaputra river from boundary-mark No. 1 to boundary-mark No. 2, at the mouth of the Kurnee river.

East.—The Kurnee river from boundary-mark No. 2 to boundary-mark No. 3.

South.—A survey line bearing 245° 30′ from boundary-mark No. 3 to boundary-marks Nos. 4 and 5, a distance of 18·05 chains.

Note.—A margin of 20 feet wide along the bank of each of the rivers on which these depôts are situated is kept accessible to the public for purposes of navigation.

TEZPUR FOREST DIVISION.

Darrang District.

I.—Bhairabighat Depôt.—Situated in Balipara mouzah, on the right bank of the Bhairabi river.

Area.—1 acre, 8 poles.

Boundaries.—North.—The compound of the Deputy-Commissioner's inspection hut.

East.—The Bhairabi river.

South.—The Bamgaon tea estate.

West.—The road leading from Bhairabighat to Bamgaon tea estate.

II.—Tezpur Old Depôt.—Situated at Tezpur, on the north bank of the Brahmaputra river.

Area.—1 rood, 11 poles, and 6 yards.

Boundaries.—North.—A line bearing 99° from boundary-mound No. 1, situated 2 chains 25 links from the Brahmaputra river to boundary-mound No. 2, on a road running alongside of a hill in the immediate vicinity of the Brahmaputra.

East.—A road running alongside of the Pora Parbat.

South.—The Brahmaputra.

West.—A road running alongside of a hill in the immediate vicinity of the Brahmaputra.

III.—Tezpur New Depôt.—Situated at Tezpur, on the north bank of the Brahmaputra river.

Area.—2 acres, 1 rood, and 35 poles.

Boundaries.—North.—The station road leading to circuit-house.

East.—A hill known as Bruce's Hill.

South.—The Brahmaputra river.

West.—The hill on which the circuit-house stands.

GOLAGHAT FOREST DIVISION.

Sibságar District.

Golaghat Depôt.—Situated in the station of Golághát, on both sides of the Dhansiri river.

First Part.

On which the forest bungalow is situated, on the right bank of the Dhansiri river.

Area.—10 acres, 3 roods, and 24 poles.

Boundaries.—North.—A survey line running due west from boundary-mound No. 2, on the Haji Kurung Jan, to boundary-mound No. 3, on the road leading from the Halmara tea garden to the bazar.

East.—The road leading from Halmara tea-garden to the bazar from boundary-mound No. 3 to boundary-mound No. 4.

South and West.—A survey-line running in a south-westerly direction from boundary-mound No. 4 to boundary-mound No. 1, on the Dhansiri river, thence the latter river and the Haji Kurung Jan to boundary-mound No. 2.

Second part.

On the left bank of the Dhansiri river.

Area.—13 acres.

Boundaries.—North.—The Dhansiri river from boundary-mound No. 1 to boundary-mound No. 2.

East.—A survey-line running in a south-westerly direction from boundary-mound No. 2 to boundary-mound No. 3.

South.—A survey-line running in a north-westerly direction from boundary-mound No. 3 to boundary-mound No. 4.

West.—A survey-line running in a north-easterly direction from boundary-mound No. 4 to boundary-mound No. 1, on the Dhansiri river.

APPENDIX V.

Rule regarding Indents by Public Departments.

Circular No. 18, dated Shillong, the 11th June, 1878.

From—T. J. MURRAY, ESQ., C.S., Assistant-Secretary to the Chief Commissioner of Assam,

To—All Deputy-Commissioners and Political Officer in Charge, Nága Hills.

I AM directed to request that in future you will not supply any forest produce to any Public Department without an indent in duplicate in the form appended hereto:—

Indent for Timber made by *on*

the Deputy-Commissioner of the *district.*

1	2	3	4	5	6	7
Kind of timber or tree.	Number of logs or pieces of trees.	Measurement or size required.	Number of logs available.	Rate @ c. foot or per tree.	Amount.	Acceptance of cost by indenting officer.

Signature of indenting officer *Forest Officer (or Deputy-Commissioner*

Date of indent *District.*

Date of estimate of cost

Timber marked and made over on account of this indent.

Extract from the Proceedings of the Chief Commissioner of Assam, in the Revenue Department, under date Shillong, the 4th October, 1879.

READ—

Progress Report of Forest Administration in Assam, 1878-79.

RESOLUTION.

MR. MANN begins his report with a brief and useful summary of the past course and future aims and prospects of forest administration in Assam.

2. The growth of forest revenue and gradual expansion of the operations of the department are very satisfactory. The area of gazetted Government forests has been increased from 1,024 square miles to 2,672 square miles, while the forest revenue has increased from Rs. 65,949 for 1874-75 to Rs. 1,61,779 for 1878-79. The area successfully protected against fires shows considerable fluctuations,—accidents and exceptionally dry seasons having much affected the results of action taken for this purpose. The area to which measures for protection from fires are continuously extended has been, however, increased from 33,600 acres to 90,342 acres. Very considerable progress has been made in mapping, surveying, and valuing the Government forests, and plantations have been extended from an area of 313 acres to a present area of 958 acres.

In observing the gradual expansion of the revenue, it must not be forgotten that a considerable proportion of this now comes from the valuation of timber standing on land taken up under waste land leases, and that this source of revenue, which must from its nature last only for a limited time, is collected by District Officers, and may be considered to belong not less legitimately to miscellaneous land revenue than to forests.

3. In paragraph 6 Mr. Mann sums up the objects which the forest administration have steadily kept in view in the following terms :—

1*st.*—To secure all the better forests as speedily as possible from further spoliation, by having them gazetted and properly demarcated.

2*nd.*—To increase the revenue from the Government forest by all legitimate means, since the financial success of forest management is the only sound basis on which it can be permanently established and maintained.

3*rd.*—To protect the areas to be maintained as forest from all that tends to interfere with their highest productiveness.

4*th.*—To ascertain by survey as soon as possible the nature and contents of each forest accurately.

5*th.*—To divide the forests as soon as practicable into well-defined and manageable divisions, ranges, and beats, because such arrangement is absolutely necessary for systematic forest management, and ensures economy in, and the utmost use of, power.

6*th.*—To improve, by sowing and planting as much as the income may permit, those forests in which expenditure on such work is most likely to prove remunerative.

The Chief Commissioner sees nothing in this summary to which objection can be taken ; and, so long as the above objects are carried out with due consideration for the rights and interests of the tribes and settled cultivators, who have hitherto depended on these forests for supplying their necessities, Sir Steuart Bayley will do his utmost to encourage the energetic prosecution of the principles which the Deputy-Conservator lays down. In dealing with jhúming tribes, especial care will have to be taken that, while the mischief of jhúming may be strictly curtailed, these people may be dealt with as liberally as possible, and, as far as may be, a reasonable area be left in their possession for the practice of their mode of cultivation, which, ruinous and wasteful as it is, has been in vogue amongst them from time immemorial, and can only by very slow degrees be superseded. The facilities for carrying out the above principles will be greatly increased if, in accordance with Mr. Brandis's suggestion, the forest officers are vested with revenue powers, and thus become connected with the regular administrative work of the district. The appointment of an additional forest officer to the Lakhimpur district will also supply a long felt and most urgent want, and the arrival of the newly-appointed forest officer at Cachar will further increase the efficiency of the department.

4. During the year under review, all the previously gazetted Government reserved forests were re-gazetted in accordance with the provisions of Section 34 of the Indian Forest Act of 1878. The southern boundary of the Ripu Reserve was slightly modified, and a more detailed and accurate description was given of the boundaries of the Saipung forest. No additions have been made during the year to the Government reserves, but preliminary steps have been taken, with a view to the addition of some 64·5 square miles of reserves, one-half of which are situated in the Nága Hills.

In the Goálpára Division the artificial boundaries have been cleared and boundary-mounds repaired, and the boundary between the Guma reserve and the Parbatjuar estate has been rectified. In the Gáro Hills an area of about 22 square miles has been selected, with a view to being made into a reserved forest, by the Goálpára Forest Officer in conjunction with the Deputy-Commissioner of the Gáro Hills.

The valuation survey of the Guma forest has been continued, and was completed after the close of the year. In the Gauháti Division the artificial boundaries were cleared and improved. Certain areas have been selected to be formed into reserved forests along the Khási Hills and Kámrúp district boundaries. Valuation surveys were continued in the Barduar forest, of which an area of 7,131 acres has now been completed.

In the Tezpur Division the improved demarcation of the Garumari reserved forests was completed, and the road running along the southern boundary of the Charduar Rubber plantation was extended by two miles.

In the Golághát Division all boundary-lines were cleared and mounds repaired. In the Sibságar Division 772 square miles of forests were examined, and a full and detailed report was submitted, with the result that only 49 square miles of this area will be proposed for reservation. In the Cachar Division, 39 miles of boundary-lines were cleared to a width of 20 feet. Owing to the absence of a divisional forest officer nothing could be done, as has been done in Sibságar, to examine the forest reserves in this district. The Chief Commissioner hopes that, now that a forest officer has been deputed to this division, progress may be rapidly made in this direction. At present, little or nothing seems to be known in detail of the contents of the very large forest reserves in this division. Looking to the very large local demand for timber, it is of much importance that accurate information should be available as to the probable supplies which may be obtainable from these reserves. In the interests of the district of Cachar and of the Forest Department, it is also of importance that it should be known with some accuracy how much of the enormous area of 745 square miles, which lies in a fairly compact, though irregular, belt to the south and east of the cultivated portions of Cachar, is really worth reserving as forest, and how much is land suitable for ordinary cultivation. For it is not desirable that land of the latter class should be permanently locked up after the natural growth of the population causes a demand for new lands for cultivation.

5. Owing to the excessive dryness of the season, the violent winds of March and April proved more than usually fatal to the Government forests. In the Sidli and Guma forests fires were lighted from inside, in the latter case the perpetrator being detected and punished. In the Gauháti division the Milmillia forest was set on fire by fire blown from the top of an adjoining hill. The destruction of forests seems to have been unusually great, not only in Assam, Northern Bengal having suffered similarly. Anyone who has seen these jungle-fires in the months of March and April must understand how difficult it is to protect forests from fire, and how impossible it is to extinguish a fire when once it has been started. The bareness of the upper slopes of the Khási and Jaintiá Hills is easily understood when the terrible velocity with which these fires spread in the dry season has once been witnessed.

6. There were 85 persons convicted of breaches of the Forest Rules in 22 cases; 27 cases in all, against 108 persons, having been instituted.

7. Some work was done in the way of clearing creepers in sál forest,—1,760 acres in the Borduar reserve having been so cleared and other smaller areas elsewhere. In the matter of artificial plantations some extension was made to the sowing of Nahor and Ajhar in the Nambor reserve. Nine acres were added to the area under Caoutchouc-trees near the Kulsi River in the Gauháti division, and 20 acres were added to the Teak plantation at the same place. Considerable progress has been made in the Charduar Rubber plantation in the Tezpur Division. The Chief Commissioner visited this Rubber plantation in February, and was much pleased with Mr. Copeland's work. It ought hereafter to be a remunerative source of revenue. At Shillong, experiments with the *Eucalyptus globulus* and the walnut have been fairly successful. The Cinchona plantations at Nongkhlow, in the Khási Hills, have not been very successful, and only *C. officinalis* continues healthy.

Much damage was done to the forest roads in the Gauháti Division by floods.

8. The result of five years' timber working by departmental agency shows Rs. 57,440 receipts, and an expenditure of Rs. 97,136 ; but, if allowance be made for the additions to the stock in hand of timber and live and dead stock, the receipts may be increased to Rs. 1,30,891, thus showing a possible profit of Rs. 33,755. If, however, the trees had been felled by private agency, a royalty would have been payable on the trees; and, if this be considered, it appears that a total capital of Rs. 1,02,871 was invested, and yielded a return at the rate of only 1·22 per cent. per annum.

9. Arrangements were made with Mech duffadars to work out timber from the Ripu and Sidli forests in the Goálpára division, which resulted in landing the timber at the Dhubri depôt at the rate of five annas a cubic foot. Some timber brought from the Pantan Forest, in the Gauháti division, was landed at Dhubri for 3½ annas per cubic foot. The sales held at Dhubri were not very successful, only 60 logs out of 451 logs put up for sale being purchased at the upset price. It is possible that the establishment of a saw-mill at Dhubri, which is said to be contemplated by a European firm, may stimulate sales. It is clear that the business of extracting and selling timber cannot for some time become remunerative in the distant forests, nor, indeed, is there any market for such timber above Dhubri. It is to be hoped that the experiment of allowing some Mech duffadars to fell timber, by paying only half the price when the timber is felled and half when it is landed at the depôt, will be successful in stimulating private agency, and relieve the forest department of the necessity of working out timber by its own agency.

10 The receipts for the year show an increase of Rs 27,454 over last year, being now Rs. 1,61,779, the increase being principally due to the larger receipts for timber standing on land surrendered for cultivation. The Deputy-Conservator of Forests points out the importance of paying attention to this branch of revenue, and in this the Chief Commissioner fully agrees, but at the same time he cannot lose sight of the fact that the rates of payment should not be such as to deter the spread of permanent cultivation, as from permanent cultivation Government also derives a revenue, which, by accumulation in a few years, much outbalances any possible revenue which it could derive from the sale of the timber alone.

There has been an increase of expenditure of Rs. 25,740, principally under the headings of timber and other produce removed from the forests by Government agency, of demarcation, and of live and dead stock, and of establishments.

11. The distinction between protected forests and district forests is of importance. The latter include large areas of forest, which it is unnecessary to maintain permanently as forests, and which may be given up for cultivation when so required; but, until so taken up, these tracts form at present the most important source of forest revenue, and require, therefore, suitable control and supervision.

12. In Sylhet, it has been possible to do very little for the proper protection of the protected forests, since an area of 260 square miles in the Langai and Singla forests has been set apart year by year for three years as a reserve for elephant-hunting by the Kheddah Department, but has never been made use of for the purpose. Considerable loss has thus been sustained by the forest revenues, in shutting up these forests without any corresponding return being obtained by Government in the Kheddah Department.

13. Some concessions have been made in the Khási and Jaintiá Hills, in allowing free of payment the use of the forest produce of the protected forests by the people, subject to certain restrictions as to the size of the trees which may be felled, which forbid the felling of trees for firewood or for sale, but permit it for private use, and after consent obtained from the Dolloi.

The rules issued regulating timber-cutting throughout the Province are said to have worked well, and are favourably reported on by the District Officers. During the year an additional royalty has been imposed on bamboos cut on Government lands, but no tax is levied when the bamboos are cut for use for purely domestic purposes, and not for sale. When land is taken up for cultivation the payment of the royalty on the timber situated upon it is not demanded, unless the tenant wishes to cut down the trees. The average rate at which this royalty was realised throughout the Province was nearly Re. 1 per acre.

In the Gáro Hills, in consequence of the impossibility of effectually supervising timber-cutting operations when carried on all over the district, at the same time, it has been determined to lease the right of cutting timber over a portion only of the district each

year, and arrangements will be made for realising the royalty in instalments of one half when felled, and one half on its removal from the revenue station. These rules will not apply to minor forest produce called *gurkati*, which may be cut throughout the district.

14. The revenue collected by District Officers has considerably increased during the year, and was Rs. 1,22,260, as against Rs. 92,832 for the previous year. The total forest revenue was Rs. 1,61,779 for 1878-79. It thus appears that by far the greater portion of the forest revenue is really due to the operations not of the Forest Department but of District Officers. Were the revenue collected by the District Officers credited to Miscellaneous Land Revenue, the Provincial Revenues would benefit to the extent of one-fifth of the amount, instead of the Imperial Revenues.

15. The Deputy-Conservator made a creditable tour. The Chief Commissioner is glad to learn that Mr. Mann is able to speak with satisfaction of nearly all the officers subordinate to him. His own energetic supervision of the Department demands the fullest acknowledgment of the Chief Commissioner.

By order of the Chief Commissioner of Assam,

S. O. B. RIDSDALE,

Secretary to the Chief Commissioner of Assam.